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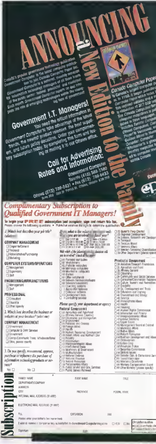

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FROM THE EDITOR

Road worrier

One of my staff recently described my fetish as an "uncontrollable lust for electronic personal organizers and information management devices." This month I decided to splurge and get the granddaddy of all PDAs (personal digital assistants) the Newton MessagePad 2000. I actually went out and bought one for $1,549, including a keyboard spreadsheet and zippered case

Ghosts of the past

My home office is littered with the debris of past experiments. Regular readers of this column will support my claim that in these pages I have chronicled my passion: Psions, Sharp Zauruses, H-P OmniGo's, Windows CE devices, Pilots and numerous PC-based software solutions—I have tried them all.

My most recent experiment was with the USR Pilot (C $429). I like this unit because it fits right into your pocket. It has great connectivity to a desktop. The downside is that you need to tie it to a real computer to get any productive data entry done. It does accept handwriting data entry through Graffiti but has no optional keyboard for longer sessions away from the computer. This means dragging a full sized notebook along to feed the thing.

I tried one of the Windows CE handheld PCs (HPCs), and enjoyed the compactness of it but was put off by the tiny keyboard. (Memo to USR and HPC makers, get an optional fuller-size keyboard happening for your units.) Besides, if I were to go that route, I would probably go back to the Psion, which is really a great little unit. It does most things a Windows CE device does, but is a little smaller and more likely to fit into one's pocket.

Another issue is that the CE devices' battery life goes all to hell as soon as you plug PC card modems into them. We watched the battery charge drop to almost zero after about five minutes of modem use. The Psion uses an external modem with its own battery pack.

Needs paralysis

My needs this time round for a PDA are a little different. I am planning a trip with my family and I want to both travel light and stay connected. I wanted a decent keyboard for data entry and to be able to browse the Web. Good backlighting was important. Reading everything I could on the various devices I thought that the Newton might be the ticket.

My choices were to buy an older Newton MessagePad 130 for about $900 or the state of the art Newton 2000 for around $1,600. Apple also sells a rugged clamshell unit called the eMate but only to schools. After looking at the specs I went for the high end. The new Newton 2000 has a chip that runs five times faster than its predecessor and claims double the battery life. Hard to argue with that kind of improvement.

Keyboard kludges and other design flaws

Apple has done it again in its never ending quest to recreate the computer universe. It is forever coming up with new kinds of ports. Instead of using the DB9 port that it has managed to make standard in the Apple world the company created a new port so—of course—you have to use a highly losable little dongle-adapter to plug the keyboard or serial cable into the unit.

Not all the applications for Newton are what you would call excellently designed but there are usually a couple of competing products to choose from. People looking for a power spreadsheet will be disappointed with the Newton Works application shipping with the unit. In our spreadsheet tests, it was very slow. This seemed to be related to this particular software as the overall feel of the Newton is very snappy. Another minor quibble is that the included word processor lacks a spell checker.

The add on keyboard is one of the best things about the unit but it also has the feeling of being tacked on late in the design phase.

What is great about the Newton 2000

The zippered case goes a long way towards making the unit like a notebook. It is still lighter than any notebook I have tried even when you include a lightweight adapter (I just heard about Toshiba's new Libretto which weighs in just under 1 kg—2.2 lb—but have yet to get my hands on one). The Newton does everything I need on the road: word processing, spreadsheets, email, Web browsing, and basic information management. Did I mention it is fast?

Battery life for this unit is supposedly 50 hours of activity (including Web surfing and using the backlighting) on four AA batteries. While I did not time this it took about a week of very heavy activity to kill the first set of batteries despite Apple's claim of a few weeks of work. As they say "your mileage may vary." Still a week is pretty good compared to most notebook computers I have tried which usually die about half way through my Toronto to Vancouver flight.

Sell the Newton or sell Newtons?

I have been reading lately that cash strapped Apple is apparently considering selling off its Newton division. I think this would be a big mistake. The Newton has finally hit its stride. With the new chip the handwriting recognition is great. It is fast, responsive and very accurate. There is a decent selection of third-party software available for it. Everything is in place for booming sales.

Apple just needs to make a compact executive-style unit combining the chip in the 2000 with a sleek clamshell design that incorporates a keyboard. Then it needs to price it down closer to the $600 that the Windows CE devices sell for. I think they could sell truckloads of these things. The market is there and a Newton could be very competitive to Windows CE-powered HPCs. I can't believe there is much difference in manufacturing costs once you get past volume limitations. Apple needs to start thinking big about Newton technology and marketing it.

Microsoft has enough clout to rope in six or seven major manufacturers to get the CE off the ground. Could Apple do the same? At one point it probably could have. Steve Jobs, with his famous reality distortion field, was reputed to have been able to get people to do things for him that they later wondered why they were doing. I can't help but think a few HPC manufacturers are wondering what they are doing in that market about now.

I may keep this one (for a while anyway)

After a full week of use I give my recommendation for the Newton. This is a fast little computer. There are still limitations, the price being the biggest one, but if you are on the road, you want your information close at hand, the ability to type large volumes of text into it and you hate your batteries running out on you, try a Newton MessagePad 2000.

Enjoy the issue.

Douglas Alder
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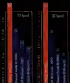

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Hard drives: what you see may not be what you get!

Since I am once again searching for more hard drive space I was pleased to see the hard-drive Lab Test and survey in your May issue. As usual I found the article informative and useful.

However, I think you and your readers should be aware that the size issue ("When is a megabyte not a megabyte?") is not the only misleading industry practice. You may not be getting what you think you are in other respects either. For example eight months ago I purchased a Seagate ST51080A drive. I read the reviews and test results and compared the specifications and decided that the Seagate unit provided the best performance in my price range. In making the decision I paid particular attention to the drive's spindle speed and the onboard cache since these seemed to affect performance the most.

The ST51080A test reports, the reviews, the advertising, the vendor and the specifications supplied with the drive all stated that the spindle speed was 5400 rpm and the internal cache was 256KB. Imagine my surprise when I discovered that the internal cache was 128KB. Ironically I made this discovery by running drive identification software provided by Seagate.

I contacted Seagate and got the following response from Seagate's Tech Support representative:

"This is true, our ST51080A come with 128KB of cache on the hard drive for the standard distribution. The drive only comes with 256KB cache for OEM [original equipment manufacturer] vendors."

The model number for both versions of the drive is identical. I looked high and low after that, but I never did find any means of establishing that the drive came in two versions. Since the documentation with the drive states that it has a 256KB cache the only way to be sure is to try before you buy. I don't know of too many vendors who would be willing to accommodate their customers to that extent.

It seems that Seagate thinks this deceptive practice is perfectly acceptable and that I have no reason to feel short changed. Unfortunately for them I don't share that view. In spite of your Editors' Choice, Seagate will not be my choice this time. Your other Editors' Choices will get my consideration. However, I will be making sure that there is only one version of the drive I decide on.

John Jennings, East Selkirk, MB, via email

TCP replies: We put your concerns to Seagate and company spokesman David Lamont, had the following comments. First, he said that you are correct that the drive originally was sold with 256KB of cache. He also pointed out that a change was made at some point during the product's life cycle. New product documentation was printed, but you must have had an older version. Incidentally, the drive you refer to is a 1995 model, and is no longer in production, according to Seagate.

But more to your concern, Lamont said the reason Seagate changed the spec was because after benchmarking, they could find no appreciable difference in performance between 128KB and 256KB caching. He quoted the results of one benchmark test, where the 256KB drive scored 790, while the 128KB drive, with a result of 803, actually scored marginally better. Lamont said reducing the amount of cache allowed the company to offer the drive at a better price without a performance penalty.

The plausibility of this was confirmed by our Lab Test editor Steve Haruda, who notes: I wouldn't be surprised if a drive with 128KB cache outperformed one with 256KB just because of all the other variables involved. Try as you may, you'll never get two identical (same model) drives to give you identical results on any benchmark suite. And when we're talking a cache size difference of only 128KB, it's nothing to get excited about.

The cache on the hard drive is nothing more than a hardware version of a software-level cache such as Smartdrv.exe in DOS and Windows or Norton's NCACHE. The only time a cache is truly effective is when you're reading or writing the very same piece(s) of data.

Let's say you have a small database that is about 100KB in size. The first time you open it up, you're reading the information from the hard drive into RAM. It's during this process that the hard drive has to tell the head to move to the exact platter and sector that houses the information and then perform the read/write operation. Now you close the database and immediately go and open it again.

With a cache enabled (hardware or software), the next time you open up that database it is stored in the cache, which operates at speeds measured in nanoseconds, so your hard drive doesn't have to do any physical movements of the heads. If the size of the cache is greater or equal to the data being read, then the operation is practically instantaneous. If the cache is small—let's say 128KB—and you open up a file that's 1.5 MB in size, only the first 128KB of that large file will be cached.

One should never forget that above all, the spin rate on a drive more than anything else will determine its overall performance, not the cache size—unless of course we're talking several MB, which is not yet the case.

Online banking convenient? Not quite

Regarding the article on PC Banking ("Banking from home" in the April '97 issue), I have been using the Canada Trust, TD and Royal systems since their inception and the Royal is not exactly my number one choice. Although the concept is good, with the Managing Your Money combination, when it comes to the actual operation of the program it does not quite measure up.

For example, everything in the Royal system is geared to the client card number. If you are running a small business, even if it's from home, according to the bank you need a business client card. That means you now have to have two completely separate datasets even though the handbook says you can set up a dataset for home, business, or home and business. So now you have to make two separate connections and two downloads to update your accounts. If for any reason you have to change your client card, you guessed it, new dataset!

I moved my accounts from the West to Ontario so the division code (one digit) on my client card

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changed. The profile number remained the same, but you cannot make any changes to the client card in the system. So I had to make a new dataset. Inconvenient but not a major problem, right?

Except you cannot transfer the historical data from one dataset to other. All the data in MYM for the online and off line accounts and all the category information up to the day the transfer was made is now in a separate dataset. As the backup system is not incremental and does a total dataset overwrite, you can't use it to restore any of the data. So I now have three datasets. The system will only allow me to work with one at a time and I have to make two separate online connections to download my updates!

One other glitch appears to be with U.S. funds. According to the handbook, on a U.S. dollar account not only can you access the account, but you can show it in U.S. dollars simply by including the letters "USD" in the account name. However, the Royal system is not designed to handle U.S. dollar accounts and you cannot retrieve any information.

I realize that PC banking is just getting started here, but these problems are fundamental and considering the time it took before the Royal was ready, you would have thought they would have picked them up.

Jim Lister, Newtonville, ON, via email

Apple not dead but ...

In response to Mr. Bushell's rebuttal letter "Apple not dead, repeat, not dead," firstly, I do not take delight in declaring the death of Apple, because I use [Apple computers] everyday. What I do want are companies working towards increasing the strength of the Macintosh market, and from what we have seen so far, Apple is not one of them.

Mr. Bushell, why are you quoting figures that are one to three years out of date? Is the truth of just how bad the Macintosh market is [illegible] terrifying to face? Let's hope this isn't a sign of things to come.

To quote *MacUSER*, "Mac OS [illegible] is a rush job designed more to prove that Apple could actually get a system out the door on time than to deliver significant new functionality." As for Apple's hardware development, the Powerbook 3400s do look wonderful, but at a starting price of over $6,500 who has the money to buy them?

Come on Mr. Bushell, the Quicktake 200 is not going to save Apple from extinction! The Exponential chip sounded great to me, too, until you learn the processor is to be used only in high-end equipment—meaning it will not be seen by the vast majority of users, and because of its power consumption, never in laptops. The rest of us will have to wait for the 620 and [illegible], due to arrive sometime after the Exponential.

And Apple has just announced another $700 million loss. Looks like another nail in the Apple's coffin to me.

Jon Firth, via the Internet

And another jumps in

I'd like to point out a few things about the letter you entitled "Apple not dead [illegible]."

First, Apple registered huge losses even with those huge market shares. A company can't survive with losses, no matter what its sales.

Second, the older 1995 data could well have changed drastically by now.

Third, Apple is not the Macintosh. This is a very important point, which is often missed. The implications are:

A. Even if the Mac survives, Apple may not.
B. Measuring user satisfaction by repeat purchase is not quite the same thing on an Apple as it is on a PC platform, and won't be, until the cloners take a large chunk of Apple's share. A PC user can buy from many different vendors without sacrificing compatibility. Up until recently a Mac user could only buy from Apple. I'll wait to see what Apple's repeat customer base is like in 1999 before I form an opinion of customer satisfaction.

I would like to point out that Rhapsody is scheduled for mid 1998, not "late 1997 or early 1998."

While I don't think Apple has a chance of going bankrupt, it'll probably be bought out long before that happens, even if they don't reverse their huge losses and start making a profit. I don't think Apple has a chance of keeping even 40 percent of the Mac market for long.

Michael Lewchuk, via email

[Background: Mr. Firth got this debate going with a letter to the editor entitled "Long live Mac clones" which appeared in our April 97 issue. In it, Mr. Firth said Apple's decision to buy NeXT and to base the future Mac OS on NeXT technology was "the last nail in Apple's coffin," and the future of the Macintosh lay with the Mac clone vendors. Mr. Bushell responded to that in our May 97 issue with a letter entitled "Apple not dead, repeat, not dead."]

Do inkjets fade from under use?

I am very interested in buying the Epson Stylus 500 printer after reading your review of color deskjet printers in the Nov 96 issue. However, I cannot find this model in any ads. There are 400, 600 and 800 models. Do you know if the 500 has been replaced by one of these other models?

Also, I know my color printing will be very limited. Could the color cartridges dry up from too little use? The article mentions that these cartridges go from $35 to $60? Are there significant price differences on the make of printer?

Stephen St. Denis, via email

TCP replies: The Stylus 500 was introduced in August '96, and as you suspected, has been replaced by the Stylus 400. According to Epson Canada, the Stylus 400 is slightly less expensive, while being slightly faster. It will also print 720x720 dpi on plain paper, whereas the Stylus 500 required special coated paper (more expensive) to print at that resolution. The 400 includes the same software bundle that was included with the 500.

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LETTERS

As for the 600 and 800 models, these are Epson's latest models, and will print at resolutions of up to 1440x720 dpi. The estimated street price for the 600 is about $450, while the 800 will likely sell for $650. The 800 is slightly faster than the 600, and is designed for business, with network interface and PostScript options available.

As to your question about ink cartridges drying from under use: Epson's latest manual (for the 600) suggests that cartridges may have to be replaced after six months, even if they still contain ink. It says the signs are prints that don't look as good as they used to or print quality that doesn't improve even after head cleaning.

However, an Epson customer support spokesperson told us that the six month life cycle seems very cautious, and expected they would last longer than that, even under intermittent use. She also points out that the ink in the reservoir doesn't dry out, but the print head nozzles do—and the self-cleaning cycles in the printer are designed to clear the print head.

We have a couple of anecdotal cases that seem to indicate that inkjets hold up over time. One of TCP's editors used a Hewlett-Packard inkjet after it had been stored for more than a year, and it worked just fine when he plugged it in and attached it to the computer.

Compton's correction

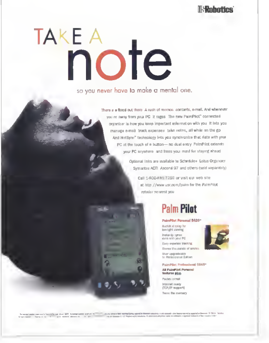
Your review of Compton's Interactive Encyclopedia in the May '97 issue was off base in one respect.

Contrary to what you say, you CAN obtain monthly updates from Compton's home page even if you're not an AOL subscriber. Just go to,

http://www.comptons.com/cisupd/index.html.

I've been updating this way since last December via my own Internet service provider and it's a painless and quick process.

Alex Bunker, via email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WHAT'S NEW

Compucon unveils Pentium II workstations • Compucon Computers, based in Richmond, BC, has unveiled a new line of Pentium II-powered workstations. The company is initially offering two models of the Compucon CPII. The CPII233 uses a 233 MHz Pentium II CPU, while the CPII266 uses a 266 MHz CPU. The CPII systems will ship with 12x CD-ROM drive, Sound Blaster 16 sound card, high-performance 3D graphics, 3.2 GB hard drive, 32 MB of RAM and Microsoft Windows 95 or Windows NT 4.0 Workstation.

Intel's Pentium II processor combines the Pentium Pro processor, MMX enhancements and Level 2 cache all packaged in a new unit called the Single Edge Contact (SEC) cartridge. —*DT*

Contact: Compucon Tel: 604 279-9886
Web site: http://www.compucon.com

IBM ThinkPads go MMX • IBM's popular line of premium notebook computers has joined the MMX wave with the release of two new models featuring Intel 166 MHz MMX processors. The new ThinkPad 760XD and the 760XL also have 12.1-inch active matrix screens with maximum resolutions of 800x600 on the 760XL and 1024x768 on the 760XD. The ThinkPad 760XD has strong multimedia features, including a swappable 8x CD-ROM drive and MPEG-2 hardware support for digital video playback. The ThinkPads come preloaded with Netfinity advanced systems management and Lotus SmartSuite.

Prices start at $7,399 and include a three-year limited warranty and toll-free hardware support. —*JF*

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CANARIE awards $16 million to 43 researchers • OTTAWA (NB)—The Canadian Network for the Advancement of Research, Industry and Education (CANARIE) has awarded $16 million for 43 projects under its Technology and Applications Development (TAD) program. The projects are to lead to new networking technologies and applications, officials said. CANARIE is a consortium run by private companies but with backing from the federal government. The Industry Canada ministry provided $78.5 million over four years for the TAD and other programs. —*Grant Buckler*

Contact: CANARIE Web site: http://www.canarie.ca

Toronto Argo Mike Pinball [illegible] opens [illegible] Centre at the Parkdale Library

Microsoft CLICs With Inner City Library • Microsoft Canada and The Toronto Public Library have opened a facility titled CLIC (Community Learning and Information Centre) at the Parkdale branch.

Microsoft supplied 15 multimedia Windows PCs with networking and Internet connections, software, and training as part of a complete information technology package under the Microsoft KidReach program.

Toronto Argonaut football star Mike (Pinball) Clemons was present for the April 24 opening and made a short but effective speech about the need for children to have opportunities to learn and hope, and have a chance to contribute in a world that is very difficult for many.

Andrew Loulson, the director of Microsoft Canada's Internet Customer Unit, said: "Communities depend on public libraries for access to new information. Adding Internet access and computer terminals merges technology

Continued on page **14**

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Continued from page **12**

with traditional information gathering, opening up a world of opportunity. Microsoft Canada is proud to provide this access to the community of Parkdale."

In conversation with *TCP*, Coulson said Microsoft particularly values the chance to give something back to the community, especially in ways that benefit those who might otherwise not have access to the benefits of information technology.

Dora Avramis of the Toronto Public Library shared Coulson's views. "Under current budgetary conditions, we simply wouldn't have been able to find funds within our budget for this kind of capital expenditure," she said.

The Parkdale community in Toronto includes the second largest proportion of immigrants in the Toronto area, and 32 percent of the low income individuals and families in the city.

Microsoft has made similar donations of hardware, software and services to two other Toronto-based CLICs (the Riverdale and Lillian H. Smith branches) as well as libraries in Ottawa and Vancouver.—*JE*

Contact: **Toronto Public Library**
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Corel announces eighth design contest • OTTAWA (NB)—Carrying on a publicity strategy that has helped make its CorelDraw software a top seller in its market, Corel Corp. has announced its eighth annual World Design Contest. Corel will give away $3 million in prizes to designers who create graphic designs in a variety of categories using the Ottawa company's software. The top prize is $250,000. The deadline for entries is Sept. 30, and the awards will be announced in the fall in Ottawa.—*Grant Buckler*

Contact: Corel, Tel: 613-728-0826 (ext. 81600)
Web site: http://www.corel.com

U.S. bank to use iris recognition for ATM ID • MOORESTOWN, N.J. (NB)—Reality is once again catching up with science fiction. Citibank is about to start testing IriSident, an iris recognition security system from Sensar Inc., for use in its automated teller machines (ATMs) and other electronic delivery channels.

IriSident utilizes standard video cameras and highly specialized real-time image processing technology to acquire iris images at distances up to 90 cm (3 ft.), explains Sensar president and chief executive officer Thomas J. Drury Jr. A photographic image of a person's iris is digitally encoded and used as their biometric signature. When identity verification is required, a camera again acquires an image of the person's iris and compares that biometric signature with the one on file. The entire verification process takes less than two seconds, he said.

According to Drury, Citibank plans to start consumer testing of the technology during the first half of 1997.—*Bill Pietrucha*

Industry Canada announces online offerings • OTTAWA (NB)—The federal government's Industry Canada ministry has announced two services for consumers on its marketplace information site on the World Wide Web. The Credit Card Costs Calculator and the Consumer Help Desk are meant to be the first in a series of consumer information products from the Office of Consumer Affairs. With the calculator, you can type in a monthly unpaid balance and see what the total annual charges would be with each major credit card. The Consumer Help Desk routes complaints and inquiries about many kinds of goods and services to appropriate agencies, and provides consumer tips, fraud and recall information, and a directory of resources.—*Grant Buckler*

Contact: Help Desk and Credit Card Costs Calculator
Web site: http://strategis.ic.gc.ca/oca

Pictorius announces Intranet Developer • HALIFAX, N.S. (NB)—Pictorius Inc. has announced INet Developer, a tool for intranet and World Wide Web site development. The company said it offers an easy-to-use visual interface and support for multiple users. Available for Windows 95 and NT, INet Developer incorporates Pictorius' Prograph programming language and provides a visual representation of the site under development, company officials said. It generates hypertext markup language (HTML) dynamically.—*Grant Buckler*

Contact: Pictorius, Web site: http://www.pictorius.com

Yahoo! claims success with Canadian site • TORONTO (NB)—Yahoo! Canada, developed by Yahoo! Inc. of Santa Clara, Calif., and Rogers Communications Inc. subsidiary Rogers Multi-Media Inc. of Toronto, claims more than six million page views for its Canadian site in March, up 40.2 percent over the previous month. The Canadian Yahoo! site was set up last summer, providing a version of the well-known World Wide Web search site that emphasizes Canadian Web pages.—*Grant Buckler*

Contact: Yahoo!, Web site: http://www.yahoo.ca

Continued on page **48**

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[illegible]

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Dot Pitch	0.28mm	0.26mm	0.26mm	0.28mm	0.28mm	0.28mm	0.28mm
Max. Resolution	1600 x 1280	1600 x 1280	1280 x 1024	1280 x 1024	1280 x 1024	1280 x 1024	1024 x 768
Horiz. Scan Freq.	30-86kHz	30-85kHz	30-69kHz	30-70kHz	30-65kHz	30-70kHz	31.5/37.5/48.4kHz
MSRP	$1,578	$859	$619	$749	$450	$439	$309

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Compaq struts its stuff at Innovate Forum 97

BY GEOF WHEELWRIGHT

Every two years at its worldwide head quarters in Houston Compaq Corp invites its friends customers and business partners to take a peek at what s coming in computing in general and from Compaq s labs in particular

The third such event Innovate Forum 97 took place in April transforming Houston into a mini United Nations as 6 500 delegates from around the world descended on the down town convention centre and the area's hotels.

Compaq invited some of the most influ ential names in computing to deliver keynote addresses Microsoft chief executive officer Bill Gates Intel chief executive officer Andrew Grove and Novell president Joe Marengi

Compaq chief execu tive officer Eckhard Pfeiffer who add ressed the partici pants on the first morning, noted that the 30 millionth Compaq PC had just rolled of the assem bly line and vowed that the company would be one of the three biggest computer companies in the world by the year 2000

While many vendors participated in the three-day event it was essentially a Compaq show and what follows are three of the more interesting pieces of news coming out of the event

Can Compaq build a PC for you?

In an effort to curb the costs of its huge inventory and gain an edge over direct sales competitors Compaq has unveiled plans to completely overhaul its worldwide manufac turing and distribution system on a "build to-order" model

Instead of attempting to build and man age an inventory of some US$2 billion worth of personal computers that can be shipped to distributors dealers and computer resellers according to sales forecasts the company will now build to order and offer its customers a custom-configuration option

Although Compaq achieved a record $18 billion in overall revenues last year Pfeiffer said the new manufacturing and distribution strategy is essential if the company is to build on that success

"Compaq is building products to order rather than building to forecast—we will build and ship standard products within one to five days of receiving an actual customer order," he explained "Build to order reduces the need to have weeks of inventory in the channel "Customers and channel partners will reap the benefits of lower prices greater product avail ability and more predictable delivery"

The second key element in this retooling is Compaq s plans to offer custom configura tion of its products—which allow either its "channel partners" (including distributors dealers and resellers) to custom configure products for customers or Compaq itself to do the custom configurations directly While some of Compaq s rivals do offer such a ser vice, it is generally available only through those with a direct sales model (such as Dell Computer or Gateway 2000)

The key for Compaq is that it allows the company to match its competition while still maintaining a good relationship with its extensive existing partners in the indirect dis tribution channel where it currently makes about 90 percent of its sales "We ll let the

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customer and the channel define exactly where the configuration should be done said Pfeiffer "Compaq is the only manufacturer who is partnering with the channel—not competing with [it]."

Compaq is implementing the plan in the United States and Australia beginning in May with "similar phased implementations" through the company's worldwide operations throughout the rest of the year. In the U.S. Compaq is hoping to have between 80 to 90 percent of its volume generated through "build to order" by the end of 1997

An Armada for the masses

Compaq also announced a new aggressively priced $3,000 (street price) portable computer with built-in CD-ROM drive sound card modem and 16 MB of RAM which is aimed at returning the company to its former number one position in the notebook computer market.

Known as the Compaq Armada 1500 it is aimed at achieving what Pfeiffer has termed "a large and long-range opportunity for growth" amongst the company's core businesses "No one knows more about the PC than Compaq" said Pfeiffer "No one has applied PC technology in more areas of business or the home That said we're far from satisfied We still see a huge opportunity to strengthen our core business by getting continuously better at the fundamentals."

Compaq senior vice-president Mike Winkler was even more specific about the company's objective to knock arch competitor Toshiba from the top world-wide notebook computing spot—particularly as Compaq virtually pioneered the whole portable computing market and once held a vice-like grip on it "We are dedicated to re-establishing ourselves as number one in portables" he said

Winkler said that since the introduction of an earlier range of value priced notebook computers last summer the company has already made some strides in regaining market share—claiming a number one position in recent market surveys of $3,000-plus notebook computers (which are primarily those used in business and by corporations)

The new Armada 1500 machines come in three models and offer a choice of Intel's Mobile Pentium Processors in either 120 MHz or 133 MHz 16 MB of RAM (expandable to 80 MB) and either a 11.3 inch color passive matrix or a 12.1 inch color active matrix display Also included in these machines are either lithium ion or enhanced smart nickel metal hydride batteries two Type II or one Type III CardBus PC Card slots four user-programmable keys and a touchpad style pointing device All models include an integrated 10x CD-ROM drive an integrated 33.6Kbps data/faxmodem and sound capability

In recognition of the fact that many corporate customers have not moved to Microsoft's Windows 95 computer operating system and are instead opting for the newer Windows NT 4.0 operating system Compaq has pre-installed both operating systems on the Armada 1500 and users may choose between them

One option not currently available on these lower priced systems however is Intel's new MMX multimedia computer processor Compaq is promising it will introduce an Armada 1500 notebook early in the third quarter that includes the enhanced processor

Friends of digital TV

Microsoft Intel and Compaq are moving into the digital TV business in a big way but they claim they want to do it in partnership with the TV industry—not by competing against it At the 1997 National Association of Broadcasters convention in Las Vegas the companies outlined their intent to "work cooperatively" with the broadcasting and cable television industries to realize the full potential of digital television (DTV) across a range of PCs hybrid PC/TVs and digital-TV appliances.

The companies set forth technical recommendations based initially on a subset of the Advanced Television Systems Committee (ATSC) specifications, that they claim would greatly accelerate the transition to digital television in the United States They also announced plans to equip millions of future personal computers to receive transmitted digital video and data as soon as the fall of 1998

"We believe that by working together with the television industry we can quickly develop an exciting future for digital TV" suggested Compaq senior vice president of technology Bob Stearns "Digital television will allow each of our industries to deliver deeper richer experiences to our customers Tremendous performance advances—far beyond today's view of television—will bring added value to customers and viewers through higher quality pictures and sound and from new information and entertainment data sources ❑

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The COMPUTER PAPER Calendar of Events

Date from/to	Event name	Organizer	Venue	City	Conf. cost*	Booth cost**	Phone	Email	Web site (http://)
5/18-20/97	Computer Audit, Control & Security 97	Info. Systems Audit and Control Assoc.	Fairmont Hotel	San Francisco	$1195	NA	847-253-1545	conference@isaca.org	www.isaca.org
5/20-22/97	Database & Client/Server World	DCI	Hynes Convention Ctr.	Boston, MA	US$1,595	NA	508-470-3880	NA	www.dciexpo.com/
5/20-23/97	Executive Symposium on Intranets & Network Computing	Plesman	Four Seasons Hotel	Toronto, ON	$845	NA	416-497-9562	ed@unixen.gts.org	www.[illegible]
5/21-23/97	CTI World 97	Voice Power	Metro Convention Ctr	Toronto, ON	$595	NA	416-449-7229	voicepower@compuserve.com	www.voicepower.com
5/21-23/97	Borland Canada's Development Conf.	Madison Consulting	Delta Chelsea Hotel	Toronto, ON	US$699	NA	800-368-1362	webmaster@dbcentral.com	www.dbcentral.com
5/24/97	Computer Fair at MacPherson Ctr	Computer Fair	MacPherson Centre	Burnaby, BC	$6	$55/24" table	604-275-4951	bmocsig@direct.ca	NA
5/28-30/97	Joint Int. Conf. on Open Distributed Processing & Distributed Platforms 97	IFIP WG 6.1	Chelsea Inn	Toronto, ON	$850	NA	613-592-8160	mfairhurst@ocri.ca	www.ocri.ca/events/icodp97
[illegible]	97 Informatics/Informatique	Canadian Information Processing Society (CIPS)	Hotel Saskatchewan	Regina, SK	$1,[illegible]	NA	306-566-6900	informatics97@regina.ism.ca	www.regina.ism.ca/org/info97/index.htm
[illegible]	Call Centre Canada 97	Advanstar Ex. Voice	Marriott Eaton Centre	Toronto, ON	NA	NA	800-[illegible]	[illegible]@callctr.com	[illegible]
[illegible]	ICCA of BC Annual General Meeting	Independent Computer Consultants Assoc. of BC	Executive Inn	Burnaby, BC	$35	NA	604-734-2747	icca@mindlink.bc.ca	www.icca-bc.org/icca/
[illegible]	97 Canadian Electronic Document Systems Conference & Exhibit	Xplor International	Congress Centre	Toronto, ON	$[illegible]	NA	610-878-4370	xplor@hookup.net	www.xplor.org/conferences
[illegible] 6/4/97	Managing the Information Transformation Effectively	Ivey School of Bus. & OIPS	U. of Western Ontario	London, ON	$2,[illegible]	NA	416-861-2477	info@[illegible]	http://www.[illegible]
[illegible] 6/1/97	'97 Computer & Home Office Show	NA	Greenbriar Arena	Brampton, ON	NA	NA	905-[illegible]	NA	NA
[illegible]	Intranets Conference & Exposition	Softbank Forums	Convention Centre	Denver, CO	US$[illegible]	US$[illegible]	800-[illegible]	NA	www.[illegible]
[illegible]	Directions 97	IDC	Holiday Inn on King	Toronto, ON	$[illegible]		800-[illegible]-4061	opnreg@opnreveris.com	www.[illegible]
[illegible]	Managing Data Warehouse Projects	DCI	NA	NA	$[illegible]	NA	508-470-3880	NA	www.dciexpo.com/
[illegible]	Canadian Wireless 1997	Canadian Wireless Telecom Assoc.	NA	Montreal, PQ	NA	NA	613-233-[illegible]	NA	NA
[illegible]	IEEE Multimedia Systems 97	IEEE	Chateau Laurier	Ottawa, ON	$7[illegible]	NA	613-[illegible]	[illegible]@ocri.ca	www.[illegible]/news/ICMCS97/
[illegible]	Information Technology Security: An Intensive [illegible] Course	National Computer Security Assoc.	[illegible] Airport [illegible]	[illegible]	US$1271	NA	[illegible]	info@ncsa.com	[illegible]
6/3/97	[illegible] Annual Awards Dinner	BC Tech. Ind. Assoc.	Four Seasons	Vancouver, BC	NA	NA	604-683-6158	[illegible]@mindlink.bc.ca	webDB.mindlink.net/[illegible]/
6/8-12/97	[illegible]	IEEE Comm. Society	Palais des Congres	Montreal, PQ	$70	NA	[illegible]	[illegible]@ieee	www.ieee.org
6/8/97	Computer Flea Market	[illegible] Wilson	Queensway Lions Ctr	Mississauga, ON	NA	$20/8 ft table	905-677-5825	NA	NA
6/9-11/97	Documation Canada—Eastern (French)	Interdoc Corp	NA	Montreal, PQ	$875	$2,500+	800-[illegible]-7501	[illegible]@interdoc.ca	interdoc.ca
6/12/97	Meeting the Network Security Challenge	Check Point Software	Marriott Eaton Centre	Toronto, ON	Free	NA	[illegible]	seminar.manager@us.checkpoint.com	www.checkpoint.com/[illegible]
6/12-14/97	Starting & Running a Successful Software Company	Alberta Research Council	Westin Hotel	Calgary, AB	$595	NA	403-297-7577	[illegible]@arc.ab.ca	www.arc.ab.ca
6/14-19/97	ED-MEDIA/ED-TELECOM 97	AACE	University of Calgary	Calgary, AB	US$445	NA	804-973-3987	AACE@virginia.edu	aace.virginia.edu/aace/conf/
6/15-18/97	Global Networking '97 Conference	ITE, ICCC, & Telus	Palliser Hotel	Calgary, AB	$[illegible]	NA	403-[illegible]	meetings@[illegible].com	www.[illegible]/gn97/
6/16-18/97	PC Expo	Miller Freeman Inc	Jacob Javits Conv. Ctr.	New York, NY	NA	NA	800-[illegible]	[illegible]@mfi.com	www.pcexpo.com
6/17-19/97	Web Innovations	Softbank Forums	San Jose Conv. Ctr.	San Jose, CA	US$1,195	NA	800-883-4[illegible]	webinn@sbexpos.com	www.webinn.com
6/18-20/97	Workflow Canada 97	Workflow Solutions [illegible]	Inn on the Park	Toronto, ON	$[illegible]	NA	416-[illegible]-2247	workflow@[illegible]	www.wfcanada.ca
6/19-21/97	E3 Electronic Entertainment Expo	[illegible]	World Congress Ctr.	Atlanta, GA	US$[illegible]	NA	[illegible]-1133	NA	[illegible].com/e3
6/22-26/97	Net97	Dalhousie University	Dalhousie University	Halifax, NS	$175	NA	NA	net97@dal.ca	net97.dal.ca
7/7-8/97	Micro 97: The PC Tech. Conference	CICA	Prince Hotel	Toronto, ON	NA	NA	416-204-3318	[illegible]@cica.ca	NA
7/7-8/97	Quark/Press Conference	Thunder Lizard Prod.	Marriott Marquis	New York, NY	US$695	NA	[illegible]	tlp@thunderlizard.com	www.thunderlizard.com/
7/9-11/97	Comdex Canada 97 Windows World & Connected Comp. 97	Softbank	Metro Convention Ctr	Toronto, ON	NA	NA	416-[illegible]-3334	NA	www.comdex.com/
7/21-23/97	Internet World Summer 97	Mecklermedia	McCormick Place	Chicago, IL	US$1,395	TBA	203-341-2923	NA	www.iworld.com/summer97/
7/23-25/97	Launching and Managing a Call Centre	International Quality & Productivity Centre	Sheraton Toronto East	Scarborough, ON	NA	NA	[illegible]	info@iqpc.com	www.iqpc.com
7/28-31/97	Sales & Marketing on the Internet	DCI	Javits Centre	New York, NY	US$1,095	NA	508-470-3880	NA	www.dciexpo.com/
7/29-31/97	Salesforce Automation Conf. & Expo.	DCI	Javits Centre	New York, NY	US$1,095	NA	508-470-3880	NA	www.dciexpo.com/
8/4-6/97	Support Services Conf. & Expo	Softbank Forums	NA	San Jose, CA	TBA	TBA	800-[illegible]	NA	www.sbforums.com
8/5-8/97	MacWorld Expo	macworld	NA	Boston, MA	NA	NA	415-974-7315	NA	www.macworld.com/[illegible]/
8/13-15/97	Windows NT Intranet Solutions	Softbank Forums	Moscone Centre	San Francisco, CA	US$1,[illegible]	US$[illegible]/sq.ft.	415-578-6[illegible]	NA	www.windowsntsolutions.com
8/25-28/97	Java Internet Business Expo	Softbank Forums	NA	New York, NY	N/A	US$[illegible]/sq. ft	415-372-7050	info@sbforums.com	javaexpo.sbforums.com/
[illegible]	Photoshop Conference	Thunder Lizard Prod.	Buena Vista Palace	Orlando, FL	US$795	NA	800-221-[illegible]	tlp@thunderlizard.com	www.thunderlizard.com/
9/9-12/97	Technopolis 97	Conf. Board of Can./KVK Dyadic Consulting	University of Ottawa	Ottawa, ON	NA	NA	613-[illegible]	technopolis@conferenceboard.ca	www.technopolis.[illegible]/
9/9-11/97	Softworld 97	BC Software Society	NA	Vancouver, BC	$[illegible]	$[illegible]	[illegible]	info@softworld.org	www.softworld.org
9/14-17/97	CTAS: Technology Performance & Management Conf. & Expo	Softbank Forums	NA	Nashville, TN	TBA	TBA	[illegible]	NA	www.sbforums.com/[illegible]/
[illegible]	[illegible]	NA	Metro Convention Ctr	Toronto, ON	NA	NA	416-[illegible]-7791	NA	NA
[illegible]	Salesforce Automation Conf. & Expo.	DCI		San Jose, CA	TBA	NA	508-470-3880		www.dciexpo.com/
9/21-25/97	Oracle OpenWorld 97	International Oracle Users Group-Americas	LA Convention Ctr	Los Angeles, CA	TBA	TBA	[illegible]	NA	www.ioug.org/public/events/oow97.html
9/26-28/97	Computer Fest/Home Office Expo	Comp Fest	Auto Bldg, Exh. Pl.	Toronto, ON	NA	NA	NA	[illegible]@compfest.com	www.compfest.com/
9/28/97 10/4/97	Seybold Seminars	Softbank Forums	Moscone Centre	San Francisco, CA	US$[illegible]	NA	[illegible]	seybold-seminars@sbexpos.com	www.seybold seminars.com
10/7-9/97	Comdex Montreal	Softbank	Palais des Congres	Montreal, PQ	NA	$31/sq. ft.	416-[illegible]-3334	NA	NA
10/12-17/97	GUIDE Fall 97	GUIDE International	NA	New Orleans, LA	TBA	No Exhibits	312-245-1000	[illegible]@guide.org	www.guide.org
10/21-23/97	Government Technology Exhibition	Connelly Bus. Exhib.	Congress Centre/Westin	Ottawa, ON	$25	NA	613-731-9850	NA	[illegible]
10/27-28/97	Documation Canada	Interdoc Corp	Sheraton	Toronto, ON	$875	$2,500+	800-[illegible]-7501	[illegible]@interdoc.ca	interdoc.ca
10/28-30/97	Salesforce Automation Conf. & Expo.	DCI	NA	Toronto, ON	TBA	NA	508-470-3880	NA	www.dciexpo.com/
11/9-14/97	18th Global Electronic Document Systems Conference & Exhibit	Xplor	Dallas Convention Ctr	Dallas, TX	US$[illegible]	NA	[illegible]	NA	www.xplor.org/
11/12-13/97	Home-based Business Show	Skymark Corp. Events	Metro Convention Ctr	Toronto, ON	Free	$[illegible]	905-726-1086	info@skymark.net	www.skymark.net
11/12-13/97	NeTtem 97	Plesman	Metro Convention Ctr	Toronto, ON	NA	NA	416-497-9562	[illegible]@plesman.com	www.[illegible].plesman.com/
11/14-16/97	Micro Expo	Groupe Expocor	Place Bonaventure	Montreal, PQ	$[illegible]/day	$[illegible]+	514-844-[illegible]	[illegible]@expocor.qc.ca	microexpo.[illegible].net/
11/17-21/97	Comdex Fall 97	Softbank	Various	Las Vegas, NV	TBA	TBA	[illegible]	NA	www.comdex.com/
12/2-4/97	Salesforce Automation Conf. & Expo.	DCI	NA	Boston, MA	TBA	TBA	508-470-3880	NA	www.dciexpo.com/
12/8-12/97	Fall Internet World 97	Mecklermedia	Javits Centre	New York, NY	TBA	TBA	203-341-2923	NA	www.iworld.com/fall97.htm
12/12-14/97	Great Canadian Computer Show & Sale	Skymark Corp. Events	Metro East Trade Ctr	Pickering, ON	Free	$[illegible]	905-726-1086	info@skymark.net	www.skymark.net
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*Conf. cost is for full package, most events offer a range of prices depending on sessions/days attended as well as member/group/student discounts. Also, early-bird rates are given if the deadline falls after the TCP publication date. **Booth rates based on 10'x10' table.

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I have to finish this by the time we land

Laptop computer use on airplanes takes off

BY GEOF WHEELWRIGHT

Ten years ago it was unusual to see people in a plane working on laptop computers. Now, they are everywhere, along with the odd few making phone calls, sending faxes, checking email and even surfing the Web

The fact is that the humble portable computer—and latterly the in-flight phone—have transformed commercial airline flights from tranquil mid-air "getaways" to hives of activity As soon as the announcement is made that passengers may now begin using their electronic devices (and quite often before) the lids of dozens of notebook computers creak open and fingers start flying over keyboards in a last-minute rush to complete the work that should have been done before leaving for the airport.

For the airlines It has been a gradual process It all started when they began to have a consistent policy about the use of laptop computers during flight, something that many airlines initially regarded with alarm and suspicion following several scare stories about strong electro-magnetic radiation coming from early laptop systems. It soon become clear that this was not a major worry and laptop computers, initially in the form of modest systems like the Tandy Model 100 were cleared for take-off

Then came the on-board phone from companies such as GTE Airfone which first allowed passengers to make those urgent last-minute calls to the office and later allowed full data communications to fax machines corporate computer networks and the Internet And this year airlines are starting to offer in-seat power sources for notebook computers so that passengers don't find themselves running out of battery power in mid-flight

Meanwhile, the pre-flight and post-flight facilities at airports have been trying to keep pace Business centres have sprung up at airports all over the world offering services for notebook computer users—and recently even Internet-connected terminals with built in Web browsers

Last year Virgin Atlantic also recognized that not everyone wants to use technology to work—at least not until they are stuck on board the plane At the airline's "Virgin Clubhouse" at Heathrow (for its first class passengers) it installed a Namco 'Alpine Racer' ski simulator. The machine with stationary ski poles for balance and ski "steps" designed for rapid realistic turns is supposed to challenge you with three courses that offer increasing degrees of difficulty, including natural hazards like fog and blizzards

Preflight checklist

For many however the prime issues around air travel and technology will hit home once they start trying to use their notebook computers on the plane Whether the ride is a half-hour hop or an eight hour slog over the Atlantic the name of the game will be to try and accomplish all those things that fall into the category of "I'll do it on the plane"

Continued on page **42**

Airborne Web access

Frequent travelers to the United States will have noticed recently that the seat-back telephone systems on many North American carriers will let you do a lot more than make a call from 30 000 feet to impress your friends back at the office

GTE Airfone, which provides in-flight telephone services on many major carriers, now offers built-in telephone sockets so that modems can be plugged into aircraft based telephones for sending and receiving email, browsing the Web and remotely dialing into your office network.

The company says calls can be placed at the gate during take-off landing, while in flight and even while the plane is on the ground at most major airports But it admits that in some cases airport communication transmissions prevent the availability of the service

These calls are also getting a lot cheaper. On US Airlines, if you want to make a domestic calls to an Internet service provider (ISP) such as CompuServe you will pay a maximum of only $15 for unlimited airtime (in addition to a $2 99 connection fee)

For calls lasting one to three minutes, you'll pay the $2.99 connection fee and a $3 28 per minute airtime fee The rates climb steeply if you need to dial overseas numbers directly from your seat, with a price of $5 to connect and $5 per minute for voice, data or fax You can also allow people to call you on the plane. Activating this feature will cost you $2, after which you'll pay the same rate for incoming calls as to place out-going calls —*GW*

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eMate 300 is proclaimed by kids (and adults) to be 'King of Cool'

BY PETER MILBURN

eMate 300

From	Apple
CPU	25 MHz ARM 710a RISC
Memory	8 MB mask ROM 2 MB flash RAM, 1 MB DRAM
Display	480x320 pixel LCD/16 levels of gray/backlit
Expansion	PC Card slot for Type I II III/ Serial RS-422 (printer/LocalTalk/ fax/modem)/high-speed IrDA
Other	Built-in speaker touchscreen pen sound input/output, AC adapter port

Suggested retail price $1 069

Question: What do you get when you give an Etch-a-Sketch a dose of high tech steroids and an IQ of 2000?

Answer: Apple's eMate 300.

Despite all the hype we keep hearing about "more power for less," desktop computers have still not reached a price point to make them widely accessible to children in schools. The eMate is Apple Computer's endeavor to bring affordable computing to more of the masses in education.

I'd heard many favorable reports about this new product, so I was anxious to find out what the fuss was all about when the package arrived. Inside I found an extremely rugged translucent emerald-green clamshell case with an integrated carrying handle. Its contoured surface is like the hood of an exotic sports car. A unique package indeed. Seems Apple has taken a cue from Sony and produced "My First Portable."

I popped the latch on this funky unit to reveal the inside. To my surprise the screen came to life immediately and the eMate was ready for action. No spinning hard disks or boot-up procedure! Being a Newton user the backlit LCD display was immediately familiar. The "soul" of eMate 300 is the amazing Newton 2.1 operating system—the same OS that drives Apple's ultramobile handheld MessagePad 2000.

Above the integrated keyboard lies a touch-screen pen, which snaps neatly into a receptacle. The pen is designed so you can touch the screen with one end, and tap the keyboard with the other end—a nice touch. Further examination of the exterior reveals a serial port (for printers faxmodems, networks and connection utilities) a PC card expansion slot, an IrDA port for wireless connection, an audio jack and a plug for an AC adapter. An internal rechargeable battery offers up to 28 hours of continuous use.

Because the eMate has no hard disk storage it comes with application software

Continued on page 29

already installed into its read only memory (other applications can be downloaded from your computer space permitting). Alternatively, you can expand the eMate's hardware and software capabilities through the PC card slot.

The installed programs excel at the three Rs. Included are a word processor, sketching program, spreadsheet, math calculator, Web browser, calendar address book, call log,

Continued on page 29

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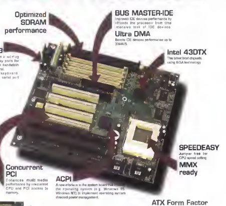
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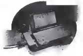
NEC MobilePro 400

A handheld RISC workstation?

BY JIM OMURA

NEC MobilePro 400



Size 17.5x9.7x2.5 cm
Weight 839 g with batteries
Software Microsoft Windows CE 1.0
Memory 4 MB (MobilePro 200 has 2 MB)
Keyboard 61 keys
Sound Windows CE supports 8-bit 11 KHz mono WAV sound files
Price $949

When one of the companies that began and still leads the portable computer industry puts its mind to entering a tough market expect it to take a leadership position. The new handheld Windows CE (WinCE) computers can all boast of computing power greater than the earliest engineering workstations but NEC's MobilePro 400—using the 33 MHz NEC Vr 4104 RISC—is the first handheld to use a CPU based on a design (MIPS R-4000) that has actually been used in recent workstations.

On the other hand, that same experience leads the company in the direction of choosing a relatively safe Microsoft software base. WinCE is supposed to be the "Windows you already know" in a smaller package. But there are two functional problems with it. First, there are differences that are at times minor irritations and sometimes worse and second sometimes "Windows-like" is simply not appropriate. Moreover it's not the established Windows. You can't run your desktop Windows programs on these handhelds—not yet anyway.

Software experience

The applications appear to be like those of other pen based systems but they operate more like "keyboard-only" apps adapted for pen usage. For example despite the pen interface, there are no "digital ink" capture drawing or paint functions. Neither does it have extensive capabilities for data reusability and integration like the applications supplied on Sharp or Psion machines.

The contacts and calendar/scheduler functions are similar in use to those in the HP200LX though the WinCE contacts file has a much finer and broader array of fields. Pocket Word and Excel are subsets of the larger desktop versions of the software. Pocket Word outline mode works well as do the font styles and sizes. Some document graphics are supported but there is no spell checker. The Pocket Excel spreadsheet handles 3D "books" but doesn't make graphs, and some functions are missing. In all these are generally adequate applications comparable to, but not better than the competitors.

The Pocket Internet Explorer 1.0 Web browser included on the CD ROM gives minimal functionality including still graphics but no caching (although Version 1.1 which does offer caching, is available for downloading). Even with a better Web browser there isn't enough room for adequate caching and the cost of PC Card memory is very high for use in this way. Email is a more practical Internet duty on the MobilePro 400 and 200.

Hardware impressions

Physically I found the spacing on the keyboard was too much of a stretch for thumb typing and too small for touch typing. The latter is a common disappointment for all the current WinCE devices. This is the only problem I found that could not be corrected with software. The screen font for the personal information manager applications was hard to read in bad lighting but even this could be altered in future software upgrades.

The NEC performance is respectable. The screen redraw times for "index" views and spreadsheets are more comparable with the HP OmniGo 100 than with the Newton MessagePad 130. File opening times show why leaving files "open" and accessing them via the button bar is the preferred way to work.

Speed tests

Function	Time (sec.)
Screen redrawing	2
Contacts file (100 records)	
Opening file	8
Closing file	2
Sorting file	3
Bringing up minimized process	2
The spreadsheet benchmark	2-3
(400 calculation floating point recalculation and redisplay)	

Conclusions

The MobilePro has the common shortcomings of current WinCE systems. But these problems are minor and will be addressed over time. This raises the question of future software upgrades. Microsoft is pursuing the rapid upgrade pattern of the Apple Newton rather than the "no upgrades" pattern that has been common with most other manufacturers. There is also an array of third-party software rapidly coming on stream. Perhaps some will even incorporate advanced programming from the workstation world.

Within the range of WinCE computers the NEC MobilePro is a good product at a competitive price from a company with a solid reputation for quality and support. It is a welcome addition to the mobile world. ❑

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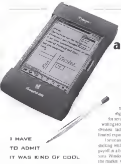


Newton MessagePad 2000 a handheld computing powerhouse

BY PETER MILBURN

Newton MessagePad 2000
Manufacturer: Apple
Suggested retail price: $1 399

When Apple launched its first MessagePad back in 1993 it was hailed as the harbinger of the next big wave in mobile computing. The prediction never came true for several reasons including poor handwriting recognition mediocre system responsiveness lack of connection capabilities and limited expansion.

Fortunately for Apple its persistence in sticking with the platform may be about to payoff in a big way. Why? There are three reasons: Windows CE handhelds are just hitting the market which will beg comparisons from serious users; that mother of all networks the World Wide Web provides a universal way to transfer information; and Apple has made quantum improvements to the Newton hardware and operating system.

Hardware

To begin with the MessagePad 2000 is an entire order of magnitude more capable than its predecessors. The CPU has been upgraded to a 162 MHz StrongARM RISC processor. This chip—manufactured by Digital under licence from Advanced RISC Machines (ARM)—is truly one of the wonders of the digital world. Consider this: the StrongARM occupies a die size of only 50 sq. mm and at 162 MHz dissipates less than 0.5 watt (a Pentium MMX at 160 MHz occupies a die size of 141 sq. mm and dissipates 8 watts).

In addition to 8 MB of mask ROM and 5 MB of RAM (1 MB DRAM/4 MB flash RAM) the MessagePad 2000 also comes with two PC Card slots for further hardware upgrades such as RAM or options like cellular radio or landline modems. At the front of the unit is a pop-up door that contains a jack for an AC adapter and an RS-422 port. This port can be used for various options such as connecting to printers modems keyboards AppleTalk networks and desktop computers (MacOS/Windows). Additionally there is a dual-mode IrDA and ASK infrared port for beaming information back and forth with compatible infrared devices.

The MessagePad 2000 is packaged in a newer sleeker design that you can hold in the palm of your hand. The touch screen pen is housed internally in a spring-loaded receptacle for easy storage and retrieval. Visible on the front of the unit are an internal microphone (for voice recording and playback) and a speaker grille. A welcome addition is a double hinged plate that protects the LCD display when your Newton is not in use. When you unlatch it it conveniently swings to the back of the unit and snaps into place. It can also be removed.

The MessagePad 2000 is powered by four AA alkaline batteries which will give you anywhere between three to six weeks of intermittent use. There are also the options of alkaline rechargeables or a nickel-metal hydride (NiMH) pack.

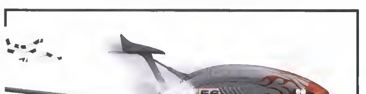
The LCD panel is noticeably larger and has a higher resolution than in its predecessors. The 480x320 pixel 14.9 cm (5.9-inch) display has a resolution of 100 dots per inch and is capable of displaying 16 levels of gray. It also has a backlight that you can use at your discretion.

System software

The operating system that drives the MessagePad 2000 is Newton OS 2.1 and it has come a long way since 1993. It was specifically designed from the ground up to support robust communications capabilities. Apple has spent a lot of effort improving the Newton OS and its performance really shines on this greatly enhanced hardware.

Continued on page 32

I HAVE TO ADMIT IT WAS KIND OF COOL WEB BROWSING WITH A HANDHELD COMPUTER. IT BROUGHT A WHOLE NEW MEANING TO THE SONG HE'S GOT THE WHOLE WORLD IN HIS HAND



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PDA spreadsheets

Computing power in your pocket

BY JIM OMURA

Beyond the basic personal information manager functions (address book and scheduler), note taking and simple calculator functions, only two functions have been widely used in handheld computers: expense tracking and spreadsheets. The spreadsheets found on most personal digital assistants (PDAs) are versatile, open-ended applications but using them is not the same experience as having a spreadsheet on a desktop computer.

The display is the main limitation to using a spreadsheet on handheld units. While scrolling is possible on most spreadsheets, it means having to remember the contents of whatever isn't visible. To stay within this limit of what you can see on the screen, it's a good idea to create the spreadsheet on the PDA you are using rather than building a mondo sheet on your PC that will be too big or will include functions that are not supported by your handheld computer.

PDA spreadsheets don't need every feature and function of a desktop package, so it is generally adequate to have a spreadsheet in a handheld that is a subset of a desktop computer. However, it is important to be able to export a spreadsheet from the handheld to the desktop.

The big picture

Hardware features to look for are the physical dimensions of the screen, the resolution in pixels and grey scaling. The physical size of the screen determines the amount of data that can be displayed. If a device allows variable font sizes, you can increase the amount of data on the screen by decreasing the point size of the letters and numbers while still keeping them big enough for comfortable reading. Screens with finer resolution (higher pixel density) will allow smaller font sizes to be displayed more clearly, while grey scaling helps graphing.

Screen sizes of PDAs

Device	Screen size (cm)	Resolution (pixels)	Grey scaling
Apple MP 130	9.5 x 7.1	320x240	mono
Apple MP 2000	13 x 8.3	480x320	16 levels
Casio Cassiopeia	11.4 x 6.7	480x240	4 levels
HP 200LX	11.0 x 4.4	640x200	4 levels
HP-OmniGo 120	8 x 8	240x240	mono
NEC MP-400	11.5 x 5.7	480x240	4 levels
Palm Series 3	12.5 x 4.1	480x180	3 levels
Sharp ZR 5800/ ZR-3000/ZR-3500	9.5 x 6.4	320x240	mono

Features and formulas

If you've never used a spreadsheet before, don't worry about not knowing all the formulas and features. For example, most of my spreadsheets are simple lists that don't use any calculations at all. The calculations I do use are generally the simplest. I add up columns using a "sums" function, and occasionally do some multiplying and percentages. Learning that much takes a few minutes.

Learning every function of a modern top-line spreadsheet might not be worth your time, but when you've learned a bit, you'll enjoy being able to "drop in a calculation" anywhere on a page whenever you want.

Some people buy the HP-200LX handhelds for the Lotus 1-2-3 spreadsheet. Others buy Windows CE devices for Pocket Excel. There's nothing wrong with that, but if you prefer one device, don't dismiss it just to avoid learning a new spreadsheet syntax. Modern spreadsheets are so similar that learning another is not really a problem.

You may find graphing capabilities useful. If so, look for a spreadsheet that supports this. Also "3D" inter-page referencing is a useful feature that can be used to maintain small spreadsheet layouts over larger data systems—but eventually, you start losing track of the data as you do with large single sheets.

> ***"... you do know the origin of spreadsheets, don't you?"***
> ***"Umm ..." the Chancellor hedged.***
> ***"They were named after the skins used by trappers," Bunny concluded with a faint smile. "You know, the things they dragged after them to hide their tracks?"***
> **—from *Sweet MYTH-tery of Life* by Robert Asprin, 1994**

Speed

We tested the speed of several PDA spreadsheets for horizontal and vertical calculations. The "horizontal" and "vertical" refer to the order the cells are calculated. The test sheet is made up of successive cells, each multiplying the previous cell by 1.001.

For the horizontal test, cell "B1" is equal to "A1*1.001". In the "vertical" test sheet cell "A2" is equal to "A1*1.001". Each test sheet contains 400 calculations. Numerical formatting for the main test is fixed formatted with two decimal places. Final answers are reported at full precision.

Apple Newton MP 130, MP 2000

Horizontal sheet: not tested
Vertical sheet: 30 sec. (4 columns)

Notes: Yikes! We were more than a little surprised—and disappointed—with the results our new MessagePad 2000 posted. The test was done using the spreadsheet module in the "Works" integrated application, so perhaps it was not a fair comparison. Also available for the MessagePad is PelicanWare's QuickFigure, which we did not test.

HP-200LX

Horizontal sheet: 0.9 sec. (8 rows)
Vertical sheet: 0.9 sec. (4 columns)
Final Answer: 1.4915265613

Continued on page 26

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16 mb ram & 7ns pipeline cache
1 6gb hdd & 15" mtr 12X cdrom & Wave 32
S3 64V+ 2mb video & 33 6 PCtel vfx modem
Ms Windows 95 cd ver installed & configured

P 133	$1528	or lease $57 /mth
P 166	$1646	or lease $61 /mth
P 200	$1718	or lease $64 /mth
Ppro-200	$2207	or lease $82 /mth

ULTINET SPECIAL EDITION #3
Intel Pentium processor & Triton chipset
16 mb ram & 7ns pipeline cache
2 5gb hdd & 15" mtr 12X cdrom & Wave 32
S3 64V+ 2mb video & 33.6 PCtel vfx modem
Ms Windows 95 cd ver installed & configured

P 133	$1597	or lease $59 /mth
P 166	$1715	or lease $63 /mth
P-200	$1787	or lease $66 /mth
Ppro-200	$2276	or lease $84 /mth

ULTINET TOWER PKG #TCP1
Intel Pentium processor & Triton HX chipset
32 mb EDO ram & 7ns 512 pipeline cache
1 6gb enh ide hdd & 15" Intelliview .28dp mtr
S3 64V+ 2mb video & 33 6 PCtel vfx modem
8x cdrom & Wave 32 sound with wavetable
Ms-Windows 95 cd ver installed & configured

P 133	$1680	or lease $62 /mth
P 166	$1788	or lease $67 /mth
P 200	$1870	or lease $69 /mth
Ppro-200	$2338	or lease $87 /mth

ULTINET TOWER PKG #TCP2
Intel Pentium processor & Triton HX chipset
32 mb EDO ram & 512k 7ns pipeline cache
2 1gb enh ide hdd & 15" Intelliview .28dp mtr
S3 64V+ 2mb video & USRobotic 33 6fx mdm
12x cdrom & Creative Labs SB16 OEM sound
Ms Windows 95 cd ver installed & configured

P 133	$1856	or lease $69 /mth
P-166	$1974	or lease $73 /mth
P 200	$2046	or lease $76 /mth
Ppro-200	$2514	or lease $93 /mth

ULTINET TOWER PKG #TCP3
Intel Pentium processor & Triton HX chipset
32 mb EDO ram & 512k 7ns pipeline cache
3 1gb enh ide hdd & 15" Intelliview .28dp mtr
S3 Virge 2mb video & USR 33 6 fx modem
12x cdrom & Creative Labs SB16 OEM sound
Ms Windows 95 cd ver installed & configured

P 133	$1972	or lease $73 /mth
P 166	$2090	or lease $77 /mth
P 200	$2162	or lease $80 /mth
Ppro 200	$2630	or lease $97 /mth

ULTINET TOWER PKG #TCP4
Intel Pentium processor & Triton HX chipset
32 mb EDO ram & 512k 7ns pipeline cache
2 5gb enh ide hdd & 17" Intelliview .26dp mtr
S3 64V+ 2mb video & 33 6 PCTel vfx modem
8x cdrom & Wave 32 sound with wavetable
Ms Windows 95 cd ver installed & configured

P 133	$2072	or lease $77 /mth
P 166	$2190	or lease $81 /mth
P 200	$2263	or lease $84 /mth
Ppro-200	$2730	or lease $101 /mth

ULTINET TOWER PKG #TCP5
Intel Pentium processor & Triton HX chipset
32 mb EDO ram & 512k 7ns pipeline cache
3 1gb enh ide hdd & 17" Intelliview .26dp mtr
S3 Virge 2mb video & USR 33 6 fx modem
12x cdrom & Creative Labs SB16 OEM sound
Ms Windows 95 cd ver installed & configured

P 133	$2292	or lease $85 /mth
P 166	$2409	or lease $89 /mth
P-200	$2482	or lease $92/mth
Ppro-200	$2950	or lease $109/mth

ULTINET TOWER PKG #TCP6
Intel Pentium processor & Triton HX chipset
32 mb EDO ram & 512k 7ns pipeline cache
SCSI (3 1gb hdd & 8X cdrom) Adptc 2940 ctrl
17" Intelliview 28dp mtr & SB16 Oem sound
S3 Virge 2mb video & USR 33 6 fx modem
Ms Windows 95 cd ver installed & configured

P 133	$2785	or lease $103 /mth
P 166	$2903	or lease $107/mth
P 200	$2976	or lease $110 mth
Ppro-200	$3558	or lease $132 /mth

ULTINET TOWER PKG #TCP18
Intel Pentium processor & Triton HX chipset
32 mb EDO ram & 512k 7ns pipeline cache
4 1gb enh ide hdd & 17" Intelliview .28dp mtr
S3 Virge 2mb video & 33 6 USR fx modem
12x cdrom & Creative Labs SB16 sound card
Ms Windows 95 cd ver installed & configured

P 133	$2407	or lease $89 /mth
P 166	$2524	or lease $93 /mth
P 200	$2597	or lease $96 /mth
Ppro-200	$3065	or lease $113 /mth

ULTINET TOWER PKG #TCP16
Intel Pentium processor & Triton HX chipset
64 mb EDO ram & 512k 7ns pipeline cache
4 1gb enh ide hdd & 17" Intelliview .26dp mtr
S3 Virge 2mb video & USR 33 6 fx modem
16x cdrom & Creative Labs SB16 sound card
Win NT Wrkstn V4 0 installed & configured

P 133	$2797	or lease $103 mth
P 166	$2914	or lease $108/mth
P 200	$2987	or lease $111 mth
Ppro-200	$3454	or lease $128 /mth

ULTINET TOWER PKG #TCP17
Intel Pentium processor & Triton HX chipset
64 mb EDO ram & 512k 7ns pipeline cache
SCSI (4 6gb ultra wide hd 12X cdrom) Adptc
2940UW ctrl 17" Intelliview 28dp mtr & SB16
S3 Virge 2mb video & USR 33 6 fx modem
Ms-Windows 95 cd ver installed & configured

P 133	$3702	or lease $137 mth
P 166	$3819	or lease $141 mth
P 200	$3892	or lease $144/mth
Ppro-200	$4595	or lease $170 /mth

ULTINOTE/CD NOTEBOOK PKG #TCP7
Multimedia ntbk 11 3" dual scan 800x600 clr
16mb ram 1 3gb hdd 256k cache & 1 44 flpy
8x cdrom 2mb video ram & 33 6 vfx modem
Three PCMCIA slots with two vacant
Approx 2hrs battery life carry case & ac adptr
Ms-Windows 95 cd ver installed & configured

P 133	$2966	or lease $110 /mth
P 166	$3083	or lease $114 /mth

ULTINOTE/CD NOTEBOOK PKG #TCP8
Multimedia ntbk 12 1" active 800x600 tft clr
16mb ram 1 3gb hdd,256k cache & 1 44 flpy
8X cdrom 2mb video ram & 33 6 vfx modem
Two PCMCIA slots with one vacant
Approx 2hrs battery life carry case & ac adptr
Ms Windows 95 cd ver installed & configured

P 133	$3751	or lease $139 mth
P-166	$3868	or lease $143 /mth

ULTINOTE/CD NOTEBOOK PKG #TCP11
No compromise big 13 3" 1024x768 active clr
32mb ram 2gb hdd & 256k cache 1 44mb
floppy & 8X enh ide cdrom, lithium ion battery
2mb video ram & 33 6 vfx modem 2x Pcmcia
Approx 2hrs battery life & Ms Windows 95 cd

P 133	$5609	or lease $208 mth
P-166	$5726	or lease $212 mth
P 200	$5799	or lease $215 /mth

Upg S3 Virge 2mb to 4mb/Matrox Mystique 2mb/4mb (OEM)	[illegible]/150
Upgrade S3 Virge 2mb to Matrox Millenium 2/4/8mb (OEM)	$171/235/495
Upgr ntbk 1.3gb hdd to 2gb, reg HX mbd to ASUS with 512k pipeline	$280/78
Upgrade reg cpu to P166/P200MMX cpu & ASUS HX mbd (the best)..	$155/370
Upgrade SB16 OEM to SB32OEM, or SB64AWE	.$95/$235
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[illegible]

PDA spreadsheets

*Continued from page **24***

Notes. This test amply illustrates that in some circles and for some tasks DOS still rules Our 2 MB version can circles around the competition nearly matching the times of our 486 notebook "reference" system.

The HP 200LX evolved from the 95LX and, later 100LX. The line has attracted a loyal following and these numbers help explain why

HP OmniGo-100/120

Horizontal sheet 2 8 sec (8 rows)
Vertical sheet 3.2 sec (8 columns)
Final answer 1 49152656125741

Notes The maximum sheet size of 64 columns and 64 rows is the smallest of all current products Graphs and inter-page referencing are not supported Clip 'n Go connectivity software supports Excel 5.0 Lotus 1 2-3 5 0 and QuattroPro 6 0 with some minor incompatibilities

NEC MobilePro 400

Horizontal sheet 2 5 sec (8 rows)
Vertical Sheet 2 6 sec (4 columns)
Final answer 1 491526561

Notes Pocket Excel lacks "range copy" and graphs and some Excel 5 0 functions are missing, but it supports Excel 5 0 books Missing functions are removed during importing

Casio Cassiopeia A 10

Horizontal sheet 1 8 sec (8 rows)
Vertical sheet 1 9 sec (4 columns)
Final Answer 1 491526561

Notes. Casio's Cassiopeia is another handheld PC that uses Windows CE (and Pocket Excel) It is powered by a Hitatchi SH 3 RISC processor, and we've seen reports claiming that it is approximately 30 percent faster than the NEC MobilePro which uses an NEC RISC processor

Our spreadsheet test results observed on an A 10 with 2 MB of RAM, seem to confirm the performance advantage of the Cassiopeia over the MobilePro 400

Psion 3a, 3c, Sienna

Horizontal sheet 4 0 sec. (8 rows)
Vertical sheet. 3 5 sec. (4 columns)
Final answer 1 49152656125747

Notes Connectivity software available separately now imports and exports to Excel 5 0 Multiple graphs are supported but not inter page referencing

Zaurus PenCell, ZR 5700, ZR 5800, ZR 3000, ZR 3500

Horizontal sheet No test results
Vertical sheet 8 sec (4 columns)
Final answer None

Notes. The screen refresh started after about 5 5 seconds The screen redraw was about 2 5 seconds The latest ZR 3000 and ZR-3500 include Windows desktop connection kits which import and export to Excel 5 0 Missing Excel functions are retained but are displayed in the edit bar with the prefix XL_ (such as XL_DMAX( ))."

The software supports drag and drop importing through a desktop icon This same software is available separately for the ZR 5700 and ZR 5800 Sheets are handled individually but 3D referencing between sheets is supported Multiple graphics can be stored with each sheet

Laptop running QuattroPro 6 0

Horizontal sheet 0 5 sec (8 rows)
Vertical Sheet 0 7 sec (8 columns)
Final answer 1 49152656125734

Notes For comparison we ran test sheets on a 25 MHz 486SX Samsung laptop computer (model N486S/25N) using QuattroPro 6 0 The laptop probably performs so much better because of Level-1 and Level-2 caching and the CirrusLogic graphics accelerator chip

Conclusions

If you have a special need then you will probably narrow down the selection easily, but overall any of these devices provide good general purpose capabilities ❑

Editor's note all machines were tested by the author except the HP 200LX and Casio Cassiopeia which were tested by TCP editors

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Packard Bell NEC 1025 Tristar Dr. Mississauga ON L5T 1V5. Tel 905 564 1122
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PR166 PROCESSOR

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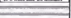

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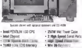

System shown with optional speakers and CD-ROM

- Intel PENTIUM 133 CPU
- Intel Chipset
- [illegible]
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- 1.7GB Fujitsu Hard Drive
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- Koss HD100 Speakers
- [illegible]
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eMate 300 — 'King of Cool'

Continued from page **21**

notepad and outliner. It was the math calculator that clinched it for me. With this amazing tool kids can do arithmetic, trigonometry, graphing and physics. The manual that comes with this package has some great physics problems and shows you how you can use the power of eMate to solve them. Kind of makes you wish you could learn all over again with this neat gizmo.

Also bundled with eMate are some invaluable utilities. eMate Classroom exchange allows one or more eMates to transfer documents back and forth between a Mac, even while they are being used. On the other hand, Newton Connection Utilities allows you to install, exchange, backup and synchronize data back and forth with Macs or Windows PCs. Teachers will love the administration capabilities and security features these packages offer.

Kid tested

But who cares what adults think, right? What do the kids who will be using eMate think? I trotted down to my neighbors' house to introduce the eMate to a seven and a 10-year old.

Their first reaction was wonderment. Then chaos ensued as they battled each other for control of the machine. Within minutes they took to the interface of the eMate as if it was a completely natural extension of themselves. They were intrigued by the cool handwriting recognition, and when I showed them how to exchange data from the eMate wireless port to my Newton MessagePad 2000, that became a new obsession. Finally negotiations began with the older child who begged me to let him bring it to school the next day. The verdict was unanimous kid approval and a show and tell booked for the next day.

Summary

The eMate ushers in a whole new class of computers for education. The eMate is not intended to completely displace desktop computers, only to supplement them and to make computing more accessible. One can see Apple's strategy is to leverage the Newton OS into an environment where young minds are open to new paradigms in computing.

An elegant and powerful interface that combines a touchscreen pen with a keyboard is a real hit with children. The bundled learning software is a boon to the fundamentals of reading, writing, math and organizational skills. And as a bonus, the Newton OS reliability is exceptional. All of this power is accessible in a durable package that weighs only 1.8 kg (4 lb.) and is a mere 5.3x30.5x29 cm (2x11.9x11.3 in.). And teachers will appreciate its low-cost, easy integration with Mac OS/Windows PCs and ability to be administered from a server.

Initially eMate will only be available to the educational market. It has been rumored that both an educational and business version of this product might make it into the retail channel sometime in the future. For over a year we've all heard from the industry about how network computers are going to take the world by storm. The only problem is nobody seems to be able to find one.

Well, surprise—I think the eMate is a network computer in disguise! ❑

Peter Milburn is a consultant with Elite Systems Support located in Calgary, Alberta. He can be reached on the Internet at elite@cadvision.com

Low-cost marketing strategies

Every type of small business requires marketing. How to budget and pay for your marketing is an important issue of course, but more important is how effectively the money is used to accomplish your specific marketing goals.

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Continued on page **44**

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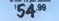

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Continued from page **23**

Responsiveness to user input, such as recognition of printing and cursive handwriting, is extremely quick and accurate. Many fine-tuning options have been added to increase accuracy. And impressively, the MessagePad 2000 learns from its mistakes so it will continue to improve.

Some of the nice touches to the interface include audio feedback on touchscreen operations and the ability to rotate the display to view software in either portrait or landscape mode. Those who have never tried a Newton will get a kick out of its natural and intuitive interface.

A few things take a little getting used to if you use a desktop computer. Because the Newton OS is ROM based, the MessagePad 2000 is instantly available for use when you turn it on. There's also no Save command as everything you enter is stored automatically.

Bundled software
The MessagePad 2000 comes bundled with built-in software that helps keep you organized and connected. Organizer features such as a calendar, address book, call log, notepad and outliner make paper organizers a thing of the past. It also comes with business productivity software including a word processor, spreadsheet, email client and Web browser. I have to admit it was kind of cool Web browsing with a handheld computer. It brought a whole new meaning to the song *He's Got the Whole World in His Hand.*

Today Newton has an extensive library of third party horizontal and vertical market software applications. Additionally, there are many hardware expansion options.

An invaluable addition is the Newton Connection Utilities package. This software and cable hardware allows you to easily install, exchange, backup and synchronize your data back and forth with Macs or Windows PCs. Connection options include transfer by serial or AppleTalk protocols. Another bonus is the ability to use your desktop computer's keyboard for data entry if you don't already have the optional Newton keyboard. I used this software to download all my information from Claris Organizer into the MessagePad, and it worked flawlessly.

I only have a few criticisms of this unit: the LCD screen, even with backlighting, is difficult to see in extreme lighting conditions; the aluminum touch screen pen should have a rubber grip as it's sometimes difficult to grasp in dry conditions; and it takes a bit of getting used to writing on the slippery screen surface. If Apple could make the experience more like writing on paper it would be a great advance.

Summary
At a mere 675 g (1.5 lb.) with batteries, it is arguable that the Newton MessagePad 2000 is the most powerful and sophisticated handheld computer in the mainstream market today. It is ideally suited to situations where mobility and ease of data entry are of paramount importance. Its immensely enhanced architecture, along with comprehensive connectivity and expansion options, make it a compelling solution for mobile professionals. ❑

Peter Milburn is a consultant with Elite Systems Support located in Calgary, Alta. He can be reached on the Internet at elite@cadvision.com

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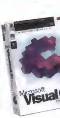

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Upward mobility

The new desktop replacement machines

BY TIM BINGHAM-WALLIS AND STEVE HALINDA

Why on earth would anyone want to buy a notebook? Generally, they're expensive, cumbersome, relatively slow (compared to a desktop PC with the same processor) and more difficult to upgrade. They have small keyboards and even smaller display screens. Yet notebooks remain an indispensable item for many mobile professionals.

Notebook users tend to fall into three categories:

- First are marketing professionals who use notebooks for off-site presentations. These people are selling ideas by using their notebook's multimedia capabilities to wow an audience.
- Second are the remote professionals. For these users, the office has no walls. Today notebooks are found in some of the most rugged environments, from construction yards to swamps.
- Third are general mobile professionals, who take their work home or to the boardroom. For them, their notebook must be a desktop replacement.

Fortunately, there are systems to suit all needs. The notebook market has fragmented into several niche markets, each vying for an increasingly specialized audience. Each niche places greater or lesser emphasis on the following characteristics: mobility, durability and multimedia functionality. For example, general mobile and marketing professionals are likely to have a wall socket nearby when the system is up and running. Therefore, concerns such as maximum battery life are a lower priority.

As with all systems, the quality of notebooks is defined by four elements: memory structure, processor power, display screen and component integration.

This month we reviewed the extreme high end of the notebook market. These notebooks are loaded with all the latest features, and then some. This market is designed for users who place a premium on functionality.

A central characteristic in these systems is multimedia functionality. The technologies associated with these notebooks have evolved to the point where they are of comparable quality to their desktop counterparts. However, buyers must beware of the trade-off between miniaturization and performance.

Processors

One exciting development is the use of leading-edge chips in mobile systems. In the past, there was a significant lag in the movement of high-end chips from desktop to notebook systems. However, the systems we reviewed this month are sporting the latest MMX-enhanced chips with clock speeds of up to 200 MHz.

Both heat and power requirements influence designers' decisions on what processor to use in a mobile system. Faster chips require more power and cooling mechanisms.

In notebooks, electricity is a particularly scarce resource. It takes time for chip manufacturers to effectively redesign their latest chips to make them smaller and less power demanding. The end result is a slower pace in notebook processor speeds.

Readers will note some of this month's manufacturers didn't wait for the mobile version of the processors. They have included 200 MHz desktop processor chips in their mobile systems. At present, Intel only makes a 150 MHz and 166 MHz version of its mobile MMX chip. These chips operate at 2.45 volts, whereas the desktop variety operate at 2.8 volts. The lower voltage means longer battery life and less heat dissipation.

By including a regular desktop chip in their machines, some of our lab participants are trying to avoid the trade-off between miniaturization and processor speed. However, the trade-off doesn't disappear; it simply shifts.

Display screens

In the recent past, notebooks had very limited graphic capabilities. Today, the quality of flat-screen displays has vastly improved. Still, buyers must remember that unlike desktop models, the laptop's display is a keeper. You may be able to upgrade most of your notebook's parts with the exception of the display. Fortunately, LCD flat panel technology has progressed so rapidly that the best displays are of equal quality to their desktop cousins.

Common to all the systems is the incorporation of larger screen sizes. Some of the systems are pushing 14 inches at the time of this writing. In addition, almost all of our tested systems use active matrix TFT rather than older passive matrix (DSTN) display technology. The benefits of active matrix over passive matrix are sharper picture quality and the ability to view the display at a variety of angles. Active matrix machines can give viewers the benefit of millions of colors, with instantaneous response times, which are essential for multimedia presentations.

The active displays also differ from passive displays because you do not need to have a direct, head-on view of the screen to see the images clearly. For people using their systems for boardroom presentations, this latter capability is of utmost importance.

However, there is one key drawback to active matrix displays—price. Active matrix displays are still rather expensive, so users who are looking for a mobile system with cost as a key factor should consider forgoing the fancy display and investing in other components.

Batteries

Today's notebooks feature significant boosts in power supply. Much of the improvement has come from the adoption of lithium ion batteries. These batteries are far superior to their nickel metal hydride predecessors. Unfortunately, there is a Catch 22 to power supply. The more effective the battery, the more gadgets manufacturers cram into the machines. For example, the inclusion of a 200 MHz MMX desktop chip and its required cooling fan will drain the system's batteries at a greater rate.

Storage

Processor and processor-enabling technologies are not the only advances in this round up of notebooks. Storage and connectivity devices of all kinds are appearing in notebooks.

Storage capacity is no longer an issue for these top-of-the-line systems. Hard drives designed for notebooks have grown in capacity and continue to be more compact. A 2.1 GB hard drive is standard in this month's round up, with one particular model sporting a 3.1 GB drive. Several systems offer space for an additional internal hard drive.

Again, buyers should be aware that hard drives designed for mobile systems are much slower than their desktop cousins. This is due to a combination of compact system integration, slower transfer rates, lower spindle rates and higher access times. This is a key reason why a typical desktop machine will almost always outperform a similarly configured notebook.

In addition to hard drive improvements, this month's tested notebooks have some of the most up-to-date storage features, like 10x CD-ROM drives, and PD (phase change dual) drives, which have only recently appeared in desktop systems.

Add-ons

In addition to built-in storage, manufacturers are increasing their use of drive bays and PCMCIA slots, allowing for the inclusion of numerous "extras," such as modems, network cards and exotic storage devices.

Continued on page 36

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Continued from page **34**

Some of these machines include internal modems thereby saving you a PC card slot. For many users their mobile computer needs to seamlessly integrate into their office environment. Notebooks need to access system-wide resources moving from client to stand-alone status at a moment's notice. Other remote users need to keep in constant contact with their home base. These users are typically employing high speed modems for Internet or direct links.

There is a misconception that PCMCIA cards are handy but limited by low performance. However several manufacturers have introduced cards with the latest features. At Comdex Japan TDK introduced both ISDN and 56Kbps PCMCIA network cards. US Robotics has also announced its intention to ship 56Kbps cards. Unfortunately purchasers will pay through the nose for this premium technology at least initially.

Component integration

The key variable in determining the quality of notebooks is component integration. The fastest processor in the world will be next to useless if the system's hard drive is of poor design. The widest active matrix screen will fail to impress if the system lacks a quality video subsystem. Our Editors' Choice systems are those with the best holistic designs.

The tests

We asked each manufacturer to send us what they would consider their current "top-of-the-line" notebook. To some, this meant a 133 MHz machine, while others quickly jumped at the chance to send their latest 200 MHz MMX systems loaded with 64 MB of RAM and enormous hard drives. Our benchmark suite was run on each machine at a resolution of 800x600 with a 16-bit color depth or 65,536 colors. To minimize the possibility of system crashes and inconsistencies each notebook's power savings features were disabled and all of the systems were tested using their AC adapters.

Our contenders

Angel 5800 Performer Plus

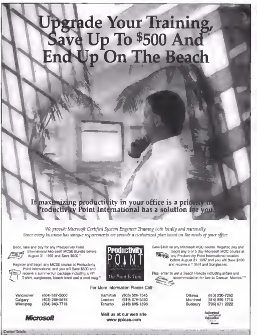
A new contender to this month's Test Lab is this 5800 Performer Plus notebook from Angel. The system is loaded with features and wasted no time making an impression. With its tested configuration it managed to score second highest on our benchmark suite with an overall score of 145. The 5800 Performer Plus consists of a 200 MHz MMX processor backed by 256KB of Level-2 cache, and 64 MB of RAM further expandable to 72 MB. The display is a sharp 12.1 inch active matrix design with a maximum resolution of 800x600 at a 16-bit color depth utilizing 2 MB of video RAM. The onboard video accelerator also features full-screen MPEG playback. The hard drive in this unit is 2.1 GB in size which should provide more than enough storage space when you're on the move.

Multimedia components in the Performer Plus series include an internal 8x CD-ROM drive a 33.6Kbps PCMCIA faxmodem and a 16-bit sound system from ESS. For presentations, you'll find a video-to-TV RCA connector on the back of the machine. Software titles included with the machine are Microsoft Works MS Money MS Undersea Scenes Screen Saver, and seven CD-ROM titles including Grolier's Encyclopedia 1997 edition. Overall this machine offers excellent performance and is yours for under $6,000 with a one-year parts and labor warranty which can be extended to three years.

Compaq Presario 1070

When we first took this machine out of its box all we could do was gawk at its sleek design. When it comes to designing notebooks that are aesthetically pleasing, Compaq has very little in the way of competition. If this were a competition for best looking notebook, the Presario 1070 would be a winner. Under its hood lies a 133 MHz Pentium processor 16 MB of EDO RAM which can be expanded to 48 MB a 1.08 GB hard drive a 10x CD-ROM drive and a built-in 33.6Kbps voice/faxmodem.

One of the most notable features of the Presario 1070 is its sound system which Compaq has termed the PremierSound Audio System. The stereo speakers on this unit are to the left and right sides of the touchpad. This machine produces the best possible sound quality that one could expect from a notebook, and then some. Playing both sound files and music on compact disc proved a memorable experience.



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With Compaq's Phone Centre you get complete telephony at your fingertips The Phone Centre features an answering machine with up to four individual voice mailboxes each with its own password an electronic address book, a two-way full duplex speaker phone, a fax centre with full send and receive capabilities as well as caller ID and name display for incoming calls.

With all its features and good looks, we were surprised when we discovered that the machine does not have a Level-2 cache Because of this, it achieved an overall score of 62 on our benchmark tests much less than it would have with the aid of the much needed 256KB external cache If you aren't all that bothered by this and want a machine that will have your friends and coworkers grinding their teeth in envy the Presario 1070 is still a great notebook. Compaq will cover you with its one year warranty on parts and carry-in labor with the first 90 days being on site

Daewoo CPC 7550

Another new contender to our Test Labs is this slim CPC 7550 from Daewoo It features a Pentium 133 MHz processor 16 MB of RAM a 1 44 GB hard drive a video accelerator with 2 MB of video RAM capable of resolutions up to 800x600 a removable 6x CD-ROM drive floppy drive and 16-bit sound system The unit weighs just over 2 25 kg (5 lb.) making it the lightest one of the bunch

This was another machine that didn't have an external cache and as a result its performance suffered If your main concern is portability this is definitely a machine you should consider

DataTrain Express DEX 120

Distributed by Serviceworks DataTrain systems are no strangers to us here at TCP Labs although we're more familiar with the company's line of desktop computers The unit we received this month featured a 150 MHz Pentium processor with 32 MB of RAM and an external cache of 256KB The display on the notebook is a 12 1 inch TFT with a maximum resolution of 800x600 The 2.1 GB hard drive will provide ample storage space for all your multimedia applications while the 10x CD-ROM can help reduce the loading time

For an additional $60 you can buy an external floppy drive that plugs into your parallel port saving you from having to swap back and forth with the CD ROM drive The use of a 150 MHz processor in this system can be an ideal solution for someone looking for a system with plenty of processing power but without the costs of processors in the 166 or 200 MHz range The estimated street price for this model is $4 500 with a one year parts and labor warranty extendible to three years.

Dell Latitude LM M166ST

Dell's latest in its notebook line is the Latitude LM M166ST It's powered by a Pentium 166 MMX processor 256KB of secondary cache and 24 MB of RAM The display is a 12 1-inch active matrix TFT with a maximum resolution of 800x600 Other components include a 1 44 GB hard drive a 10x removable CD-ROM drive

removable floppy drive and an ESS 1688 audio chipset On the software side of things, Dell will also throw in a copy of MS Office 97 Small Business Edition.

Systems from Dell are well known to us here at TCP Labs for their high-quality designs and overall system performance This month was no exception with the LM M166ST coming in second place of all the 166 MHz systems. If you're looking for both quality and performance at a competitive price Dell should definitely be on your list

Eurocom 6200T

Eurocom has recently made the headlines by being one of the very first manufacturers to put out a notebook with Intel's 200 MHz processor If you're looking for a notebook to replace your desktop computer Eurocom had you in mind

when they designed the 6200T The unit consists of a 200 MHz MMX processor 256KB of Level-2 cache 64 MB of RAM a 1.0 GB hard drive and both an internal 8x CD ROM drive and floppy drive.

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Hewlett-Packard OmniBook 5700CTX

With the new 5700CTX, Hewlett-Packard has decided to try out a different design The new model uses a more common casing found on many other notebooks, rather than the ultra-slim design found on the OmniBook 800CT which we reviewed in January (see our Web site at http://tcp.ca) Gone is the pop-out mouse fancied by many on the old design as is the smaller 10 4-inch display which has been replaced by a larger 12 1-inch model Our test unit came equipped with a Pentium 166 MMX processor, 512KB of Level 2 cache 32 MB of RAM expandable to 64 MB a large 3 GB hard drive and a 10x CD-ROM drive The 5700CTX has a suggested list price of $8,846 and comes with a standard three-year parts and labor warranty

Hyperdata Hyperbook 759MX

Yet another machine to take advantage of Intel's 200 MHz MMX processor is the Hyperdata Hyperbook 759MX The 759MX we tested was loaded with features To start off, we have 64 MB of RAM a video subsystem with 2 MB onboard that delivers 800x600 resolutions on the 12 1-inch TFT screen, and a high speed, internal 10x CD-ROM drive Making the system all the more desirable is the huge 3 1 GB hard drive and a wireless (infrared) mouse

With a setup such as this replacing your desktop computer with a notebook has never been easier. The 759MX is priced at $5,074 with a three-year parts and labor warranty

Impulse Powerlite 6000

Still lingering on our minds is the Impulse Duonote we reviewed back in January If ever there was a notebook that made an impression the Duonote was it One of the most appealing things about that model was its built in communications support with both a 28 8Kbps faxmodem and a built in 10Base T Ethernet connector.

The Powerlite 6000 is a newer model with a few differences The model we reviewed was equipped with a 166 MHz MMX processor 32 MB of RAM a 2 1 GB hard drive and both an internal 10x CD-ROM drive and floppy drive The ESS 1888 will provide great quality 16-bit digital and 3D surround sound for your multimedia applications and should make your games and presentations come alive especially when used in conjunction with the video-to-TV port found on the back of the machine.

Although the Powerlite 6000 does not have the 10Base-T network connector, it does have a faster 33 6Kbps faxmodem This model is priced at $5,999 and comes with a three-year

Continued on page **42**

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NOTEBOOK SURVEY

	Angel 5800 Performer Plus	Compaq Presario 1070	Daewoo CPC-7550	DataTrain Express DEX-120	Dell Latitude LM M166ST	Eurocom 6200T	Hewlett-Packard OmniBook 5700CTX	Hyperdata 759MX
Processor (MHz)	Pentium 200 MMX	Pentium 133	Pentium 133	Pentium 150	Pentium 166 MMX	Pentium 200 MMX	Pentium 166 MMX	Pentium 200 MMX
Cache (KB)	256	None	None	256	256	256	512	256
MB RAM (standard/max.)	64/72	16/48	16/NA	32/NA	24/40	64/72	32/64	64/64
Screen (inches)	12.1 TFT	12.1 CSTN	12.1 TFT	12.1 TFT	12.1 TFT	12.1 TFT	12.1 TFT	12.1 TFT
Max. resolution	800x600	800x600	800x600	800x600	800x600	800x600	800x600	800x600
Video RAM (MB)	2	1	2	1	2	2	2	2
Hard disk GB	2.1	1	1.44	2.1	1.44	1	3	3.1
CD ROM drive	Internal 8x	Internal 10x	Removable 6x	Removable 10x	Removable 10x	Internal 8x	Removable 10x	Internal 10x
Floppy drive	Removable	Internal	Removable	Removable	Removable	Internal	Removable	Internal
Audio	ESS 1788	ESS 1788	Crystal 16-bit	Crystal 16-bit	ESS 1688	ESS 1788	Crystal 16-bit	ESS 1868
PC Card slots	2	2	2	2	2	3	2	2
Pointing device	Touchpad	Touchpad	Touchpad	Touchpad	Touchpad	Touchpad	Trackpoint	Touchpad
Dimensions WxDxH cm	28.5x22.8x5.3	30.48x24.13x4.8	29.7x21.8x4.57	29.8x23.38x4.8	29.7x22.6x4.8	29.9x23.36x5.33	29.7x22.35x6.33	29.7x23.62x5.58
(inches)	(11.8x9x2.1)	(12x9.5x1.9)	(11.7x8.6x1.8)	(11.75x9.2x1.9)	(11.7x8.9x1.9)	(11.8x9.2x2.1)	(11.7x8.8x2.1)	(11.7x9.3x2.2)
Palm Rest cm (in.)	8.89 (3.5)	11.93 (4.7)	8.38 (3.3)	8.89 (3.5)	7.36 (2.9)	9.52 (3.75)	7.36 (2.9)	6.9 (2.75)
Weight kg (lb)	3.5 (7.7)	3.5 (7.7)	2.5 (5.5)	3.3 (7.3)	3.1 (6.82)	3.7 (8.14)	3.5 (7.7)	3.5 (7.7)
Battery type	NiMH	Lithium Ion	NiMH	NiMH	Lithium Ion	NiMH	Lithium Ion	NiMH
Operating system	Windows 95	Windows 95	Windows 95	Windows 95	Windows 95	Windows 95	Windows 95	Windows 95
IR port	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes
Extras	Video-to-TV port 33.6Kbps modem	33.6Kbps modem				Video-to-TV port		IR mouse
Windows Benchmarks								
Desktop publishing	144	58	72	85	115	122	118	95
Desktop graphics	174	109	122	173	214	165	200	159
Desktop presentation	147	56	78	86	137	133	130	107
Word processing	145	55	71	87	121	123	125	102
Spreadsheet	152	72	84	87	152	141	144	107
Database	124	55	67	78	118	101	102	79
Overall Sysmark32	145	62	77	90	135	128	130	103
Contact	888-322-6435	800-263-5868	905-415-7290	905-712 2080	800-624 9897	613 224-6122	800-387 3867	800 927 4777
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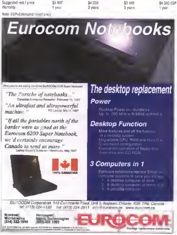
Warranty	1 year	3 years	3 years	1 year	1 year	1 year	3 years	3 years

Note: ESP=Estimated street price



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NOTEBOOK SURVEY

	Impulse Powerlite 6000	IPC NB2000	Jetbook 7000	KTX 800	NEC Versa 6200MX	Panasonic CF-62	Toshiba Tecra 740CDT	Ultinet
Processor (MHz)	Pentium 166 MMX	Pentium 200	Pentium 200 MMX	Pentium 133	Pentium 166 MMX	Pentium 133	Pentium 166 MMX	Pentium 166
Cache (KB)	256	256	256	256	256	256	256	256
MB RAM (standard/max.)	32/64	32/40	64/64	40/80	32/128	16/72	16/144	32/72
Screen (inches)	12.1 TFT	10.4 TFT	12.1 TFT	12.1 TFT	13.3 TFT	12.1 TFT	13.3 TFT	12.1 TFT
Max. resolution	800x600	800x600	800x600	800x600	1,024x768	1,024x768	1,024x768	800x600
Video RAM (MB)	2 MB	2 MB	2 MB	1 MB	2 MB	2 MB	2 MB	2 MB
Hard disk (GB)	2.1	1.08	2.1	1.3	2.1	1.3	2.1	2
CD ROM drive	Internal 10x	Internal 8x	Removable 10x	Removable 6x	Removable 10x	Internal CD/PD	Removable 10x	Internal 8x
Floppy drive	Internal	Internal	Removable/External	Removable	Removable	Internal	Removable	Removable
Sound	ESS 1888	ESS 1788	ESS 1878	Crystal 16-bit	ESS 1878	ESS 1888	SB Pro compatible	ESS 1788
PC Card slots	2	2	2	2	2	3	2	3
Pointing device	Touchpad	Touchpad	Touchpad	Touchpad	Touchpad	Touchpad	Trackpoint	Touchpad
Dimensions WxDxH cm (inches)	29.7x23.8x4.57 (11.7x9.3x1.8)	30.2x23.3x5.84 (11.8x9.2x2.3)	27.9x22.86x5 (11x9x2)	29.8x23.49x4.57 (11.75x9.25x1.8)	29.69x24.7x5.3 (11.69x9.75x2.1)	29.5x23.6x6 (11.6x9.3x2.4)	27.9x23.36x5.8 (10.9x9.2x2.3)	29.9x23.1x5 (11.8x9.1x2)
Palm rest cm (in.)	8.38 (3.3)	8.89 (3.5)	8.12 (3.2)	8.63 (3.4)	8.89 (3.5)	9.52 (3.75)	6.9 (2.75)	9.52 (3.75)
Weight kg (lb)	3 (6.6)	3.7 (8.1)	3.2 (6.8)	2.9 (6.4)	3.8 (8.3)	3.2 (7.1)	4.2 (9.2)	3.6 (7.9)
Battery type	Lithium Ion	NiMH	NiMH	NiMH	Lithium Ion	NiMH	Lithium Ion	NiMH
Operating system	Windows 95	Windows 95	Windows 95	Windows 95	Windows 95	Windows 95	Windows 95	Windows 95
IR Port	Yes	No	Yes	Yes	Yes	Yes	Yes	No
Extras	Int. 33.6Kbps modem Video-to-TV port				Internal 28.8Kbps modem		Int. 28.8Kbps modem Built-in microphone	33.6Kbps PCMCIA Video-to-TV port
Windows Benchmarks								
Desktop publishing	83	100	118	92	127	79	108	97
Desktop graphics	159	162	145	135	220	143	172	143
Desktop presentation	99	110	109	165	153	84	122	110
Word processing	117	104	105	103	137	79	138	101
Spreadsheet	112	101	110	86	152	106	148	117
Database	88	83	102	79	124	74	163	87
Overall Sysmark32	108	107	100	94	146	88	123	107
Contact	800-668-1111	888-446-4472	800-538-8212	905-948-0000	800-366-0476	800-742-8086	800-387-5645	800-513-7732
Suggested retail price	$5,999	$2,888	$6,100 ESP	$3,765	$8,359	$7,250 ESP	$9,679	$4,481
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Note: ESP=Estimated street price

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Continued from page 30

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IPC NB2000

From 3D Microcomputers comes the latest model in its notebook line. This 200 MHz machine is equipped with all the power you need on the road, or on your desktop. Our evaluation model came to us with 32 MB of RAM, 256KB of Level 2 cache and a 1.08 GB hard drive. The screen on this unit was a 10.4-inch active matrix TFT with a maximum resolution of 800x600. The 8x CD-ROM and floppy drives are both internal, saving you the hassles associated with swapping back and forth between the two.

Although it uses a smaller 10.4-inch display this notebook would still make a great traveling companion for anyone who just can't beat the thought of not being wired at all times. And with a price tag of just under $2,900 it's not only the lowest-priced notebook in this survey but offers the best price/performance ratio as well.

Jetbook 7000

From MobilTech International comes the Jetbook 7000 a notebook loaded with all the trimmings. This particular model features a 200 MHz MMX processor 256KB of Level 2 cache and 64 MB of RAM. Storage components include a 2.1 GB hard drive, a removable Teac 10x CD-ROM and a floppy drive which can be used either internally or externally at the same time as the CD-ROM drive. This particular feature will certainly come in handy as it did for us during our testing.

For 16-bit 3D sound the Jetbook 7000 makes use of the ESS 1878 chipset. Optional accessories for this machine include a 33.6Kbps faxmodem a removable second hard drive and a removable 240 MB Fujitsu MO (magneto optical) drive. The unit has an estimated street price of $6 100 and comes with a one year parts and three-year labor warranty.

KTX 880

The KTX 880 is a model we tested back in January of this year. However there are some changes in its configuration for this month's tests. The unit is powered by a 133 MHz processor, 256KB of Level 2 cache and 40 MB of RAM expandable to a total of 80 MB.

The hard drive differs slightly this time being 1.3 GB in size. KTX notebooks are distributed in various cities worldwide by Edge Wholesale. The model 880 as configured for our tests is priced at $3 765 and is backed by a two-year parts and labor warranty.

NEC Versa 6200MX

When it comes to making high quality notebooks with all the bells and whistles, NEC knows exactly what it's doing. The 6200MX is its latest creation, featuring the new 166 MHz MMX processor. Our evaluation unit was equipped with 32 MB of RAM which can be expanded to a whopping 128

MB, 256KB of Level 2 cache a 2.1 GB hard drive a removable 10x CD-ROM drive and a built in 28.8Kbps faxmodem

The screen on the 6200MX uses the latest technology—a 13.3-inch active matrix TFT panel, with a maximum resolution of 1,024x768—easily comparable to a 15-inch desktop monitor. To say that the images were sharp and brilliant on this display would be an understatement.

Among the software included with this machine is Laplink for Windows, McAfee VirusScan Netscape Navigator and Star Trek First Contact Video Saver (a collection of video clips from the movie that can be used as your Windows 95 screen savers).

The 6200MX was the fastest notebook in this month's survey Although some may wonder how a 166 MHz MMX machine can outperform a similarly configured 200 MHz model, the answer lies in tight integration and the use of the highest quality components In the game of raw performance everything counts. Whether it's the type of RAM the make of the hard drive the type of video accelerator and especially the construction and layout of the motherboard itself they all play a crucial role in separating the good from the best NEC seems to have found the perfect combination as can be seen from their 6200MX If you want a notebook that has it all and then some get the Versa 6200MX

Panasonic CF-62

The CF-62 from Panasonic gives new meaning to ingenious design. It's equipped with 16 MB of RAM expandable to 72 MB, a 256K Level 2 cache and a 1.3 GB hard drive When we first took this notebook out of its box, we were wondering why they didn't include a CD-ROM drive with it Upon further examination of the box we figured they forgot to pack it.

Only after we set the machine up did we come across the Eject button located near the base of the keyboard Upon pressing it imagine our surprise when we heard the light sound of a small motor and saw the keyboard begin to lift up and a CD tray pop out The CF-62 has a combination PD/CD-ROM drive housed beneath the keyboard The one tray will accept either a standard CD-ROM or a PD disc (which is similar to a CD but is rewritable) Although more expensive than CD-R media, PD technology is still a great solution for optical/rewritable storage. Thanks to its complement of a 256KB Level 2 cache the CF-62 was the fastest machine in the 133 MHz class.

Toshiba Tecra 740CDT

Looking at the Tecra 740CDT for the first time we knew we were in for a treat The system is powered by a 166 MMX processor and is helped along by its 256KB Level 2 cache and 16 MB of RAM expandable to 144 MB in total Storage comes in the form of a 2.1 GB drive a removable 10x CD-ROM drive and removable floppy drive This was the only other notebook in our survey this month to make use of the new 13.3-inch TFT screen. As can be expected the images were very sharp with spectacular color at resolutions up to 1,024x768

To round out the system, Toshiba has included a built in 28.8Kbps faxmodem and built in microphone Performance was good with a score of 123 but had the machine been equipped with 32 MB of RAM or more that number would no doubt be higher. The Tecra 740CDT is priced at $9,679 and comes with a three-year warranty

Ultinet

Interestingly enough Ultinet sent us the only notebook to use a non-MMX processor running at 166 MHz. Since our criteria didn't specify MMX technology it was great to have a non-MMX machine at 166 MHz to do a side-by side comparison of the varying scores. This particular model had 32 MB of RAM, expandable to 72 MB, a 2 GB hard drive, an internal 8x CD-ROM drive a removable floppy drive and a 16-bit sound system using the ESS 1788 chipset. The screen was an active matrix 12.1-inch TFT which produced high-quality images at up to 800x600 using 2 MB of video RAM Also included with this notebook is a 33.6Kbps PCMCIA faxmodem and a video-to-TV port found on the back panel

It's interesting to note that this notebook has the capacity to hold three PCMCIA cards, rather than the standard two found on most machines The only other machines able to do this were the Panasonic CF-62 and the Eurocom 6200T

For the most part, a machine similarly equipped with an MMX processor will run slightly faster due to its larger Level-1 cache of 32KB Competitively priced, this machine can be had for $4 461 with a one-year parts and labor warranty and includes a copy of PerfectWorks

Editors' Choices

Performance
As always, our performance award goes to the fastest system This month to our surprise, the fastest system was not a 200 MHz MMX system but NEC's Versa 6200MX with a 166 MHz MMX processor This machine managed to outperform all of its competitors with an overall score of 146 on our benchmarks, thanks to its excellent design and engineering

Price/Performance
Without a doubt this month's award for the highest performance at the lowest price goes to IPC's NB2000 notebook. The machine has everything you need for working on the go at an amazingly low price

Overall
Our award for best overall notebook this month goes to Dell for their LM M166ST This is yet another machine that proves that a good overall design with the right components and tight integration goes a long way when it comes to raw performance This 166 MHz MMX unit outperformed many of its competitors equipped with 200 MHz processors. As always, this system from Dell not only offer excellent performance, but has very competitive pricing ❑

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Continued from page ***29***

business location, business cards and stationery, the clothes you wear, the personnel you hire, how your phone is answered and how quickly you respond to queries. Other influencing factors include: the nature and form of your advertising, promotion, staff image, sales presentations and contracts, quality of sales and service, site management and customer relations, and problem solving.

Here are some low-cost effective options to consider.

Word of mouth • It is a cliche but an accurate one: word of mouth is the best form of advertising. The more people promote your business because they know you or are satisfied customers, the more sales you are going to make. Personal testimonials are very persuasive and credible. Attempt to cultivate positive and respectful customer relations at all times. Remember, the customer is always right, even when the customer is wrong. One dissatisfied customer can taint your goodwill to many other people. You should therefore deal with any customer complaints in a prompt and efficient manner.

Brochures • Brochures and posters can be very effective and relatively inexpensive. Some of the advertising uses of a brochure are: leaving it with a prospective customer, distributing it at a seminar, presentation, trade show or other distribution location, sending it as part of a direct mail campaign, and mailing it after a written or phone request for further information. Always obtain competitive quotes on brochure production and printing, as prices can vary considerably. If you want color printing done, ask the printer to do it at the same time as they are doing the same color run for others. This should save you money if you can wait for a few days.

Classified and display ads • You may wish to consider advertising in the classified sections of newspapers, magazines or newsletters targeted to your market. Display advertising can be expensive and is not appropriate for everyone, although it can be very effective if properly targeted. A larger ad does not always bring in a greater response. You may want to test the market by placing classified ads in selected community or daily newspapers, and tracking the response. You may then want to test a display ad in those newspapers that produced a good response.

Co-operative advertising with suppliers • Many manufacturers and suppliers will pay for a portion of your ad if you use their name or logo in some way in your ad or other marketing promotion. Do your research and talk to your suppliers and their suppliers. The savings to you could be 50 percent or more.

Teaching courses and seminars • Teaching adult education classes is an effective way to make business contacts, meet prospective customers, obtain public exposure and enhance your reputation as a credible expert in your business. In addition to being paid, teaching also has the fringe benefit of keeping you current in your areas of interest. Contact the continuing or adult education program coordinators of school boards, colleges and universities in your area. If you don't feel comfortable speaking in public and want to develop that skill, you can take courses through school board or college adult education programs and/or join a local chapter of Toastmasters.

Before you decide what forms of marketing to consider and the time, energy and financial resources you wish to commit, make sure you do a marketing plan in writing that you can understand and use. This should also include a marketing planning calendar and the tracking procedure to monitor how effective each form of marketing is for you. ❑

Douglas Gray, LL.B. is a Vancouver-based lawyer by training, speaker, columnist and author of 15 bestselling business books, plus a real estate investment software program. His books include The Complete Canadian Small Business Guide *and* Home Inc.: The Canadian Home-Based Business Guide *(both published by McGraw-Hill Ryerson) and* Start and Run a Profitable Consulting Business *and* Marketing Your Product *(both published by Self-Counsel Press).*

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PowerBook 3400c

Apple's full-featured laptop packs a 240 MHz punch

BY PETER MILBURN

For years, the promise of desktop performance in a notebook computer has never quite lived up to the hype The compromises have generally been related to issues such as power consumption heat dissipation in the CPU and bus design constraints in trying to accommodate full featured circuitry into a portable package. The good news is that the wait is finally over

Performance

Apple has upped the ante considerably by introducing a 240 MHz notebook design and has amply served notice that it is "ready to rumble" with its PC competitors Other more affordable models are being offered at speeds of 180 MHz and 200 MHz.

Apple's design goal was a no-compromise package and it came close to realizing that objective It started by choosing the RISC PowerPC 603e designed by IBM and Motorola The 603e has remarkable specifications and is chosen over its 604e cousin for it frugal power savings.

Today's 603e's running at 300 MHz only dissipates 3 5 watts and occupies a die size of 42 sq mm On the other hand a 160 MHz MMX Pentium dissipates 8 watts and occupies a die size of 141 sq mm The PowerPC architecture has some obvious advantages when it comes to portable design

But clock speed is wasted unless the subsystems surrounding the CPU are optimized. To help this cause the 3400c has a 256KB Level-2 cache which is supplemented by 16 MB (expandable to 144 MB) of 128-bit fast interleaved EDO RAM A 12 x CD-ROM drive and 3GB fast ATA hard drive help the cause even further An accelerated video circuit was added to drive a bright 12.1 inch SVGA active matrix screen in thousands of colors. And it's all interconnected by a 64-bit PCI bus

Industrial design

The case design of the 3400c is distinctly different from the 1400c model. Apple decided to throw in more smooth curves and give it a more "muscular" look than the squarish 1400 design.

There are two raised speaker grilles on the cover that house pseudo sub-woofers in addition to two smaller speakers at the top of the keyboard This four speaker system offers the best sound I ve heard on a portable model but audiophiles will still prefer to use the 16-bit/44 KHz audio-out jack to their stereo.

An integrated microphone enables sound recording or the utilization of Apple's speech recognition software. Below the middle of the screen are two convenient slides controls for volume and brightness. The 3400c shares the same great full-spaced keyboard and precise trackpad as the 1400c. A single lithium ion battery provides two to four hours of use on a single charge and recharges in a couple of hours.

One drawback to the 3400c is that it's not as easy to upgrade internally as the 1400c It requires some disassembly with torx screwdrivers It s dimentions are 6 6x29 3 x24 cm (2 57x11 42x9 36 in) and this entire package weighs in at 3.3 kg (7.26 lb) That s heavy as far as portables go so whiners need not apply

(We've read reports of some users encountering problems with memory cards—which are located under the keyboard—working loose The unofficial fix is to add a bit of foam tape between the keyboard and memory card to help keep the latter seated.—Ed.)

Expansion

There's lots of expansion ports on this baby A clever innovation is a combination Ethernet/33 6Kbps faxmodem port that can be accessed simultaneously Add to that two PC card slots for support of Type I II and III cards (with the bottom slot supporting "zoom video," a method for displaying full screen video on external displays).

There is also an external VGA monitor port to hook into a second display It only supports video mirroring and not the tiled video capability that Mac users have become accustomed to

The CD ROM and floppy drive modules are designed to be hot-swappable, something you don't want to try on a PC. To round out your selection is the standard fare of wireless IrDA SCSI and ADB

The 3400c ships with software similar to the 1400c with the exception that Mac OS 7 6 is bundled with this unit

Summary

The PowerBook 3400c/240 admirably fulfills the objective of desktop performance in a portable design It is a scintillating "road rocket" that is indisputably the performance champion of the portable market Although its sticker price is beyond the justification of most mere mortals, its pricing is in line with the top offerings from IBM and Compaq whose models only run at 166 MHz.

If your are involved with high-end multimedia presentations or demanding applications in science and engineering (or if you have a lot of cash burning a hole in your pocket) then this model will make sense for you. The pure exhilaration of experiencing this unit makes one give serious consideration to abandoning a desktop model altogether.

With the low-power 300 MHz (and beyond) PowerPC 750 (G3) slated for release in desktops and notebooks this summer it appears that Apple will have a lock on the ultra high performance portable market well into the future ❑

Peter Milburn is a consultant with Elite Systems Support located in Calgary Alta. He can be reached on the Internet at elite@cadvision.com

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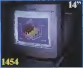

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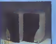

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Matrox Mill. 1M(Retail)/4M (OEM)	$255/325
Matrox Mystique 2/4M (OEM)	$186/225
S3 3D Virge Engel 1M (Retail)	$79/99
Tride[illegible] Mpeg 2M PCI	$69

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Continued from page 14

Kodak puts 1.2 million pixels of camera in your hand • Kodak Canada has launched the first point-and-shoot digital camera that offers consumers high-resolution digital photography for under $2,000. The Kodak Digital Science DC120 Zoom Digital Camera boasts a maximum picture resolution of 1,280x960 pixels, for a suggested list price in Canada of $1,399.

The DC-120 comes with both Mac and Windows software, and has a motor driven 3x zoom lens that can accommodate subjects ranging from wide angle landscapes to detailed close-ups. It is based on a radical new high resolution

charged-coupled device (CCD) imager (636,400 pixels) and comes with a built in LCD display to let users organize and delete pictures from within the camera.

Images can be viewed one at a time or in groups of four or nine and are saved in the FlashPix image file format, developed by Kodak, Hewlett Packard, Live Picture Inc., and Microsoft. The DC120 is compatible with CompactFlash removable memory cards, available in 2 MB and 10 MB capacity, to supplement the DC-120's 2 MB of internal RAM.

"The DC120 camera's ease of use and excellent resolution combine to make it a breakthrough solution in the marketplace," according to Hal Duffin, vice-president of digital and applied imaging for Kodak Canada. "It captures dazzling detail for anyone who requires excellent picture quality, increased flexibility and portability for all of their imaging needs." The DC120 is the first 1.2 million pixel digital camera on the consumer market and its high resolution will make it of interest to those who need a portable imaging device with high resolution capability. Applications include news gathering, law enforcement, Web page creation, insurance, real estate, health care, and graphic arts.

The camera can store up to 20 pictures in 24-bit color, depending on the level of compression and picture quality chosen by the user. Two uncompressed images can be stored in the 2 MB permanent memory. —*JE*

Contact: Kodak, Tel: 800-465-6325 or 416-766-8233
Web site: http://www.kodak.com

CD ROM speed jumps again with Panasonic announcement • SECAUCUS, N.J. (NB)—CD ROM drives just keep getting faster. Panasonic Computer Peripheral Co., a unit of Matsushita Electric Industrial Co., has announced two 24x models. The 24x figure means the drives are 24 times as fast as the first CD-ROM drives that were introduced. To date the market has seen 2x, 4x, 8x, 12x, and 16x models.

In Mode 1, which includes error-correction data and is the common format for CD-ROM data, Panasonic claimed the drives can transfer 3,600KB of data per second. In Mode 2, which lacks error correction and is usually used for Photo CD, video, and CD-Interactive (CD-I), the maximum throughput is 4,104KB, the company said.

Company spokesman Tom Kivett says the two new models are essentially the same except they support the connection/interface types indicated by their names—the LK-MC686BP EIDE/ATAPI and the the LK-MC606BP SCSI. Both models are for Intel-based PCs. Panasonic does not have a 24x model for use with Macintosh OS systems, Kivett said.

The new drives support CD-ROM, CD-Audio, Photo CD, CD Recordable (CD-R), and CD-Read-Write (CD-RW) formats. They also support CD-I and Video CD, but only with the addition of a Motion Picture Experts Group (MPEG) board or software, which is not included or offered as an option with the drives, but can be bought separately from various suppliers. Both drives can be mounted either vertically or horizontally, Panasonic said.

Estimated street prices are US$199 for the EIDE/ATAPI model and US$209 for the SCSI model, the company said. —*Grant Buckler*

Contact: Panasonic Computer Peripheral Co.
Web site: http://www.panasonic.com/alive

IBM Canada becomes technology partner with Chinese Canadian community • Canada's Chinese business community has developed a strong presence in the PC market, mainly selling budget-priced "clones," so it comes as a bit of a surprise to learn that Big Blue has become a participant in the most ambitious Chinese Canadian cultural project to date. On April 24, IBM Canada and the Chinese Cultural Centre of Greater Toronto (CCC) announced a technology partnership, which will see IBM engage in a long-term commitment to the development of North America's largest Chinese cultural centre, to be constructed in Metro Toronto's City of Scarborough.

Don Myles, vice-president and general manager of IBM Canada's Channels Management and Personal Systems, said: "IBM Canada recognizes that our country is a diverse society and are pleased to support the Canadian Chinese community. In February we opened our first IBM Home Computing store dedicated to serving the particular needs of Chinese Canadians. We are pleased today to further demonstrate our commitment by investing in the Chinese Cultural Centre as their exclusive technology supplier."

Plans for the centre include state-of-the-art videoconferencing and Internet and intranet facilities that will help link the centre to other parts of Canada and Asia. Ming-Tat Cheung, chair of the CCC, said, "As we enter a new millennium, we believe state-of-the-art technology is the best tool to preserve and promote invaluable Chinese culture to Canadians and to the world. IBM is a logical choice in such a technology partnership because the company has the most experience in a wide spectrum of information technology. Their international network, and diversified expertise will help us build a strong information system that can be linked to other cultural centres around the world."

Aside from being a good Canadian corporate citizen with this partnership, IBM has probably made a shrewd strategic move, both to raise its profile in the Chinese Canadian business community and, through the CCC's links to China and overseas Chinese communities, to bolster its international brand recognition and reputation. —*JE*

Contact: IBM Canada, Tel: 905-316-3902, Web site: http://www.ibm.com
Chinese Cultural Centre, Tel: 416-827-9377

WHAT'S NEW

One MS Office 97 licence sold every second, says Microsoft • Scott McNealy, the founder and chief executive officer of Sun Microsystems and arch foe of Bill Gates, once characterized Microsoft as "a post office box for royalty checks." If that is true, the box must be bulging, because according to figures released by Microsoft on April 17, Office 97 sold over eight million licences for the business suite in its first quarter—more than one per second.

"Office 97 licences have been selling at three times the rate of any previous version of Office for a comparable time period," says Anne McKeon, product manager for desktop applications at Microsoft. "That tells us Office 97 may be our most successful edition yet."

Microsoft claims the integration of Internet and intranet features in Office 97 has helped accelerate its acceptance by both corporate and individual users. Microsoft also claims that over 70 percent of *Fortune* 1,000 companies are either deploying or actively testing Office 97. —*JE*

Contact: Microsoft
Web site: http://www.microsoft.com/office/

Best of shareware balloting online • WARWICK, R.I. (NB)—The Shareware Industry Awards Foundation (SIAF) and the operator of a Web site specializing in shareware distribution are inviting Web browsers to cast their Hall of Fame Shareware

Hall of Fame induction nominees. Net surfers and shareware users can cast their ballots on the SharewareJunkies.com Web site until June 1. Ballots can be cast for current or defunct programs regardless of the platform on which they run.

Shareware is computer software ranging from simple utility programs to complex business applications, and is usually offered on a "try it before you buy it" basis.

Winners will be announced during the 1997 International Industry Conference, set for June 26-29 in Warwick, Rhode Island, and will be included in the balloting for Hall of Fame inductees. The new Hall of Fame will be included in the Web site set up for the conference. Ballots can be cast online at the SharewareJunkies.com Web site, which also contains reviews of dozens of shareware programs and is currently looking for software reviewers. Interested readers can apply online. —*Jim Mallory*

Contact: SharewareJunkies
Web site: http://www.sharewarejunkies.com
Conference Web site: http://www.sic.org

CompuServe serves up Canadian menu • TORONTO (NB)—CompuServe has notified its Canadian subscribers of a new menu designed for its users in the Great White North. Canadians will see the new menu automatically if they have release 4.0.2 of the WinCIM software, or they can get to it by typing "go Canada" at a CompuServe prompt.

Among the Canadian features are the Canada Forum, the Canada Professionals Forum, An Canada's area, the Maclean's Online and Maclean's Forum areas run by the national news magazine *Maclean's*, and stock quotes from the Toronto and Montreal exchanges. —*Grant Buckler*

Immune System latest release in Corel's medical series • OTTAWA (NB)—Corel Corp. has announced The Immune System, an addition to the company's Medical Series of CD-ROMs. Intended as a [illegible] patients with [illegible] and autoimmune diseases and for their families, the CD-ROM was written by Dr Jacob Karsh, professor of medicine at the University of Ottawa. The disk runs on Windows or Mac platforms and has a suggested retail price of $84.99. (Reviews of previous releases in this series are available at *The Computer Paper* Web site: http://tcp.ca.)

Contact: Corel Web site: http://www.corel.com

Micrografx Webtricity energize your Web graphics • Increasingly, when you surf the Web, you run into sites that are all-singing, all-dancing, with repetitive little animations, nifty 3D effects, musical scores, and a high degree of ingenious interactivity with lots of buttons for you to push. Occasionally the result of this multimedia glitz is actually a Web page that is more informative, easier to use, fun and aesthetically appealing.

If you've wanted to create your own stunning multimedia Web pages but aren't a professional animator or a programming whiz, Micrografx has released a new Web graphics package to help you out.

Webtricity is a weighty suite of graphic software tools oriented specifically to the needs of Web publishers. It is designed as a "one-stop-shopping" package for online artists. It includes Simply 3D 2, a program to animate 3D objects that can be included in a Web page. Animations can be saved to VRML 2, animated GIF 89a or AVI formats.

Also included are Videocraft, for creating ani-

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mated 2D GIFs, Map This! for creating image maps for hot spot links on Web images, Designer 7 a very powerful vector illustration program analogous to Adobe Illustrator a version of Micrografx Picture Publisher 7 an image manipulation application similar to Adobe's Photoshop and Media Manager 2 which can read and write over 50 file formats, for drag and drop access to virtually every file you may find on the Web

As well Webtricity contains 20 000 Web-optimized photos, 20 000 clip art images 500 3D objects, 1 000 VRML 2 animated 3D objects 1,000 seamless textures 500 Web page templates, plus an array of predesigned buttons and bars for creating Web page user interfaces

This package should be regarded as a toolkit for Web publishers at every level. In particular, schools, small to medium businesses and personal Web publishers are likely to find this program a good tool for getting started on the Web at a relatively low cost in money and time —*JE*

Contact: Micrografx Tel 800-734-9036
Web site http://www.micrografx.com

Dell opens new Canadian headquarters • TORONTO (NB)—Dell Canada a subsidiary of Dell Computer Corp has moved to a new location in the Toronto borough of North York. The company said it needed more space because of rapid growth.—*Grant Buckler*

Contact: Dell Canada 501 185 Gordon Baker Rd
North York, ON M2H 3N5 Tel 416 758-2290

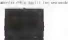
InSystems Software aims at Web marketing • MARKHAM (NB)—InSystems Technologies Inc. said its new Fandango software will let organizations create personalized, interactive relationships via the Internet Fandango is based on InSystems Mosaic which is used by financial services organizations Like Mosaic company officials say it will help build relationships with customers by improving communications InSystems calls Fandango a knowledge-based document assembly system which can be used to customize documents for purposes such as sales and marketing, fulfillment, and customer service —*Grant Buckler*

Contact InSystems
Web site http://www.insystems.com

Newbridge expands DSL offerings • OTTAWA (NB)—Newbridge Networks Corp has added the 2730 MainStreet Internet Termination Unit (ITU) and the 2721 MainStreet Router Termination Unit (RTU) to its MainStreet line of telecommunications products. Newbridge said the Digital Subscriber Line (DSL) devices will be used to support Internet Protocol (IP) communications for purposes such as telecommuting, Internet and intranet access and remote access to corporate networks They are available now —*Grant Buckler*

Contact Newbridge Networks Corp
Web site http://www.newbridge.com

Acer introduces MMX based AcerNote Light multimedia notebook • Joining the increasing wave of MMX-based multimedia notebook models, Acer rolled out its first MMX enhanced [illegible] Two new models of



the AcerNote Light line are based on an Intel Pentium 150 MHz processor with MMX 32 bit PCI bus Zoomed Video port, 256KB pipeline burst cache and other multimedia features at a base price of $3 650 The AcerNote Light 384 has a 2 GB drive 32 MB of EDO RAM 10x CD-ROM drive 33.6Kbps fax/modem, and 12.1 inch active matrix LCD display The AcerNote Light 383 has 24 MB of EDO RAM and 11 3-inch DSTN screen.

Acer provides a full range of Acer keyboards monitors, and mice that coordinate with the AcerNote's colors All AcerNote Light models ship with a one-year limited desk-to-desk warranty, and a lifetime service line —*JE*

Contact: Acer Tel: 905-712 7900
Web site. http://www.acer.com.aac/

Corel sells CD Home Collection multimedia software line • Ottawa-based Corel Corp has announced the sale of its Corel CD Home Collection line to J. Hoffmann + Associates Inc., a Toronto-based publisher of interactive CD-ROMs. The line includes a popular movie guide and a wide range of family-oriented "edutainment" titles.

Corel founder and chief executive officer, Michael Cowpland says the sale is in line with the company's strategy "to move forward in pursuing our interests in the field of productivity application and graphics software and the vast

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opportunities presented by the Java based operating system. We are confident Hoffmann + Associates will lead the Corel CD Home Collection to continued success while enabling us to place better focus on our flagship Corel WordPerfect and CorelDRAW products."

Under the terms of the deal, Hoffmann will pay Corel $1 million cash and a royalty fee on future sales of the former Corel titles. As well, Corel will retain a minority interest in Hoffmann and will continue to sell CD Home titles through its online shopping centre, Corel Galleria, and will cooperate with Hoffmann in developing sales through Corel's established channels.

I. Hoffmann + Associates is a long-established Canadian CD-ROM publisher noted especially for children's titles. According to founder Isabel Hoffmann, "over the years we have worked closely with Corel and have developed a great affinity for the titles in the CD Home Collection while gaining a keen respect for the creative genius of the developers who worked with Corel to produce them. This acquisition represents a natural step in the planned growth of Hoffmann + Associates. The Corel CD Home Collection is an excellent complement to our own successful product lines, especially the Nikolai's Adventures series and our Nikolai's Web site." —*IE*

Contact: **Corel** Tel 613 728 0828
Web site: http://www.corel.com
I. Hoffman Web site: http://[illegible]
or http://www.nikolai.com

Intel faces cash crisis: makes too much money • Intel Corp. has announced its financial results for the first quarter of 1997 and its main problem would seem to be finding rental space to store all the extra cash that keeps pouring in. Gross revenue for the quarter was US$6.4 billion, up 39 percent from the same period in 1996. Net income was almost US$2 billion, a 116 percent increase over the previous year.

According to Intel, "revenue and earnings per share both set new records driven by higher demand for the company's most advanced processors, the Pentium processor with MMX media enhancement technology and the Pentium Pro processor."

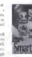
Competing PC processor makers, such as Motorola, Cyrix and AMD, cannot assume that Intel's prosperity will be a flash in the pan. Intel has been investing its profits in a vast and aggressive research and development program to create even more powerful generations of processors. In 1997 Intel plans to spend $2.4 billion on research and development and capital investments (mainly chip fabrication plants) of $4.5 billion.

Intel chief executive officer Andy Grove claims "1997 will be a year of major product transitions for Intel. In May we plan to introduce the Pentium II processor, the next major step in computing. As we shift to these more powerful processors, our challenge as always will be to add manufacturing capacity fast enough to supply all market segments."

Intel is so impressed with its own performance it has repurchased 42.6 million of its own shares at a cost of US$4.6 billion, so it won't have to share too much of its gigantic profits with public shareholders. It has also announced a two-for-one stock split to take place June 10. No word yet on whether negotiations to rent storage space in Uncle Scrooge's Money Bin have gone beyond the exploratory stage. —*IE*

Contact: Intel Corp. Web site: http://www.intel.com

Lotus targets Microsoft Office with upgrade program • Obviously not content to let Microsoft steamroll through the office suite market unopposed, Lotus Development Canada has announced "the latest in a series of bold competitive marketing initiatives for SmartSuite." The company is offering a special SmartSuite Competitive Upgrade to encourage qualified users to trade up to Lotus SmartSuite, including maintenance, for $79 per year or $130 for two years.



"We're making it easy for mid-size and large enterprises to deploy the productivity suite that offers robust collaborative computing and has turned the Internet into a useful business tool," claims Lorna Rosenstein, general manager of Lotus Development Canada. "We are offering the SmartSuite competitive Upgrade Program to the market while Microsoft Office customers are in decision mode. Many are planning the move [from Windows 3.x to Windows 95] to 32 bit platforms and are being asked to pay higher prices for Office, contend with its new file formats, and upgrade their hardware to run it. Our Competitive Passport prices and free training program provide select accounts with a powerful feature set and an unprecedented economic reason to consider the SmartSuite alternative."

Lotus says conversion from MS Office to SmartSuite will be eased by support for MS Office file formats, and a Word Menu Help Expert to provide Lotus Word Pro equivalents for MS Word functions. A free multimedia training program from PTS Learning Systems, the On Demand Interactive Learning for Lotus SmartSuite 97, is available to North American customers. —*IE*

►

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IBM P200+	$259.00
Intel Pentium 75	$125.00
Intel Pentium 90	$140.00
Intel Pentium 100	$155.00
Intel Pentium 120	$165.00
Intel Pentium 133	$199.00
Intel Pentium 166	$319.00
Intel Pentium 200	$399.00
Intel Pentium 166 MMX	$399.00
Intel Pentium 200 MMX	$699.00
Intel Pentium Pro 150	$289.00
Intel Pentium Pro 180	$599.00
Intel Pentium Pro 200	$749.00

MAINBOARDS

[illegible] Mainboard	$[illegible]
ASUS Intel Triton VX	$199.00
ASUS Intel Triton HX	$209.00
GB Triton VX	$155.00
GB Triton HX	$189.00
KTX Intel Triton VX	$119.00
KTX Intel Triton HX	$159.00

SIMM RAM

[illegible] MB RAM ([illegible])	$[illegible]
4 MB RAM (30-pin)	$39.00
4 MB RAM (72-pin)	$39.00
8 MB EDO RAM (72-pin)	$58.00
16 MB EDO RAM (72 pin)	$105.00
32 MB EDO RAM (72-pin)	$229.00
8 MB RAM (72-pin)	$59.00
16 MB RAM (72-pin)	$115.00
32 MB RAM (72-pin)	$249.00

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5.1 GB HARD DRIVE	$589.00
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[illegible] Monitor	$[illegible]
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Sceptre 15" Monitor	$369.00
ACER 15" Monitor (7154E)	$359.00
ACER 15" Monitor (7156E)	$394.00
MAG 15" DX 1595	$469.00
MAG 15" DX 15T	$489.00
Samsung 17 GLi	$879.00
MAG 17 DJ 700	$769.00
MAG 17 DX 700T	$869.00

FAX MODEM CARDS

[illegible] Fax Modem ([illegible])	$84.00
[illegible] Fax/Modem (Zoltrix w/V)	$99.00
[illegible] Fax/Modem (Jaton)	$89.00
[illegible] KTX Fax/Modem	$99.00
[illegible] USR Fax/Modem w/voice	$169.00

NETWORK CARDS

[illegible] Ethernet Adapter ISA	$[illegible]
KTX Ethernet Adapter PCI	$49.00
LANPRO Ethernet Adapter	$49.00

All upgrades and parts have a one year warranty (parts). All prices are subject to change without any prior notice. Prices are already shown with a 3% cash discount.

VIDEO CARDS

[illegible]	$[illegible]
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1 MB Tseng ET4000	$79.00
[illegible] MB Tseng ET6000	$99.00
1 MB CIRRUS Logic PCI	$49.00
[illegible] MB FIRESTORM 192-bit	$269.00
[illegible] MB ATI 3D XPRESSION PCI	$109.00
4 MB S3 PCI	$99.00
4 MB Matrox Mystique	$199.00
4 MB ATI Pro Turbo PCI	$249.00

SOUND CARDS

Sound Blaster 16 bit	$[illegible]
16-bit Sound Blaster AWE 32	$139.00
16-bit Sound Card	$39.00
ACER AW 32 Sound Card	$79.99

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[illegible] Scanner ([illegible])	$[illegible]
A4 WinScan 2400 dpi Scanner 400 dpi	$339.00

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[illegible] Speed	$[illegible]
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12X Speed	$129.00
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AD 2940 Kit	$295.00
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AD 2940 UW Kit (retail)	$379.00
AD 2944 W Kit (retail)	$499.00
AD 3940 [illegible] Kit (retail)	$[illegible]

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Hewlett Packard HP-5L	$[illegible]
Brother Laser HL 730 DX	$[illegible]

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Microjack Video Editor	$679.00
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Xerox color laser breaks $5 000 price barrier • Xerox Canada has announced what it claims is the least expensive full featured color laser printer yet "designed to bridge the gap between low-speed ink jet machines and high-end production color systems." The Xerox DocuPrint C55 Color Laser Printer is a 12 page per minute (three pages per minute for color) 600 dpi printer with a street price around $4 900. With a footprint of only 47x42 cm (18.5x16.5 in.) the C55 is also the most compact color laser on the market. The base model comes with 30 MB of memory (6 MB of Flash ROM and 24 MB of RAM) and support for PCL. A higher end model, the C55 MP comes with Adobe PostScript Level 2 built in and an Ethernet networking card for a street price of about $6 100.

Xerox claims a host of innovative new features with the C55 all aimed at lowering cost of ownership and increasing efficiency and ease of use. The ImageFix feature automatically corrects low-quality digital photos, the Fax-Friendly Black feature converts colored documents into black-and-white patterns that are readable after being sent through a monochrome faxing machine and the Hold Job Function gives users a grace period to load special media or pick up sensitive documents without being bumped out of the print queue.

The C55 also incorporates Intelligent Color 2.0 which applies the best imaging techniques to particular document elements such as photos, charts and other graphics. Xerox CentreWare DP network printer management software and CentreWare Internet Services software for accessing the printer via Net connections with a browser interface are also available for use with the C55.

Ron Pratt the vice-president of the Xerox Canada Channels group claims "The DocuPrint C55 is the first of a new generation of color laser printers and the flagship of the Xerox network printer line. It is differentiated by its productivity and value providing ingenious solutions to everyday business problems. The color market is growing rapidly as more workgroups integrate color into their documents and the DocuPrint C55 will reinforce Xerox's position as a color leader from the desktop to the production environment."

Pratt says that in addition to a lower sticker price, the C55 has greatly reduced cost of ownership due to simple network integration, lower cost supplies and higher reliability.

A IDC study of the color laser market claimed that over the next four years, sales will grow from US$564 million to US$2.8 billion. According to Angele Boyd, IDC's vice president of peripherals research, "Much of this growth will be fueled by products like the DocuPrint C55 which offer increased functionality at ever-decreasing price points."—JE

Contact: Xerox, Tel: 800-ASK-XEROX
Web site: http://www.xerox.com

Java goes better with Intel, claims Intel • The Java programming language has often been touted as the Next Big Thing in computing, which along with improved networking technology will break the dominance of the MS Windows/Intel alliance on the desktop. Yet according to recent claims by Intel Corp. the best hardware platform to run Java applications on may be ... an Intel-based PC.

On April 16 Intel released test results that show the Java programming language runs best on Intel Architecture processors. The results obtained with the industry standard CaffeineMark benchmark software by Pendragon Software indicated that a 100 MHz-based Pentium PC system ran Java software at 1.5 to two times the speed of systems based on other vendors processors, according to Intel.

In a press release Intel claims "The findings are expected to be welcome news to customers at two levels. Computer users who have made Intel processors the most widely used processors in the world can continue working and playing on Intel-based products confident that they're seeing top performance from Java applications. Application developers who have embraced Java as a means of adding excitement to their products, can create innovative new software, knowing it can reach the largest base of computing customers."

At a presentation at the Innovate '97 Conference in Houston in early April Andy Grove chief executive officer of Intel demonstrated a prototype of a Network PC (or Net PC—a computing platform defined by Intel and Microsoft to provide low-cost computing systems in networked environments) based on a 233 MHz Pentium II processor which ran the Corel Office for Java program side by side with a Sun Microsystems JavaStation also running the Corel Office for Java. The Intel Net PC was said to have had visibly faster performance than the Sun computer.

Intel claims Java performance on Intel systems will continue to increase as Intel "tunes" and optimizes the Java virtual machine. "Java system performance, as measured by the CaffeineMark, often depends more on the Java virtual machine software than on the hardware. Due to the intense competition in the Java compiler market for Windows PCs, today's fastest implementations of Java run on the Intel architecture," says Ivan Phillips, president of Pendragon Software Corp.

The *Java Performance* white paper describing the benchmark results in more detail is available from both Intel and Pendragon Software's Web sites.—JE

Contact: **Intel**, Tel: 408-765-5728
Web sites: http://www.intel.com/pressroom
or http://www.intel.com/procs/perf/java.htm
Pendragon Software
Web site: http://www.webfayre.com/index.html.

Adobe After Effects 3.1 for Windows: desktop video power for MMX PCs • At the National Association of Broadcasters (NAB) show in Las Vegas, Adobe Systems unveiled the latest version of its After Effects program for digital compositing, 2D animation and special effects. The new version is designed for optimum support of 32-bit Windows operating systems (Windows 95 and Windows NT) and takes advantage of the enhanced performance of Pentium MMX processors.

It is expected to ship by June and two versions will be available. The Standard Version with all the basic tools and features will have a list price of $995 while the Production Bundle with high-end features such as Motion, Keying and Distortion will sell for $1 995. The new Windows version of After Effects is claimed to have the same feature set and user interface as the Mac version. The appearance of the program on the Windows platform is part of an ongoing trend of products originally developed on the Mac becoming available with identical functionality on the PC.

According to Tim Miller co-owner of the

Continued on page 54

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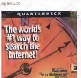
Continued from page 52

Venice, Calif., digital effects firm Blur Studio. "Until now the primary drawback to creating effects on the Windows platform has been the lack of a strong compositing tool. After Effects is universally acknowledged as being the most powerful desktop compositing tool on the market. The availability of this world-class compositing and special effects software for Window NT is a great benefit for those doing effects using PCs."

"The new version of After Effects for Windows features complete integration with Adobe Photoshop and Adobe Illustrator and also offers the capability to third-party developers to create plug-in modules to extend the program's capabilities still further." Plug-ins such as blue-screen compositing software from Ultimatte and special effects generators and organic particle effects generators from DigiEffects, were also announced at the NAB show.—*JE*

Contact: Adobe. Tel: 416-360-2317
Web site: http://www.adobe.com

Quarterdeck's Web Compass helps find a way around the Web • One of the best things about the World Wide Web is also the worst thing: there is so much stuff out there that whatever you are looking for is probably on a Web site somewhere, but you may never find it. To help the hordes wandering in the "World Wide Waste of Time," Quarterdeck has released Web Compass, a new software tool aimed at making the Web a much more efficient and less frustrating resource.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As well, Web Compass can use earlier search results to improve subsequent searches, according to Quarterdeck. In the absence of a more rationally organized Web, Quarterdeck's Web Compass is one of the most useful tools on the market for untangling the millions of ever changing strands of information that are stretched around the wired world.—*JE*

Contact: Quarterdeck. Tel: 800 282-0888
Web site: www.quarterdeck.com

Motorola's 300 MHz Mac: good news and bad news for Apple • Want to buy the world's fastest Mac? Want to get it for under $4,000? Well, you might start your search by checking out Motorola's new StarMax 5000/300 system.

Motorola Computer Group of Canada (MCG) has announced a 300 MHz StarMax minitower complete with Mac OS 7.6, 16x CD-ROM drive, 5 PCI slots, 4.3 GB hard drive, 10Base-T Ethernet, 512KB Level 2 cache, 4 MB VRAM graphics, 100 MB Iomega Zip drive and various utility software titles, all for the low suggested retail price of $3,971 (street prices may be less). This is a lot of Mac for the buck.

An even higher end version of the StarMax 5000/300 with an IMS Twin Turbo graphics card with 8 MB of graphics memory is priced at $4,656.

The new StarMax 300 models follow on the heels of the highly regarded StarMax 3000/240, which caught Mac users' attention in 1996 and helped establish Motorola as one of the top quality suppliers of Mac compatibles.

Apple must regard the flourishing of Mac compatible makers, such as Motorola and Power Computing, as a mixed blessing. On the one hand, the Mac "cloners" (a term Apple detests) are helping to keep the Mac flame burning, and are offering enticing price/performance and a welcome element of competition and innovation in the once closed Mac market. On the other hand, Motorola in particular seems to be making Macs better and cheaper than Apple does, and the cloners' share of the total Mac market has skyrocketed in the last year, from a few percent to nearly 30 percent in certain markets, according to industry estimates.

In recent weeks, speculation in the American media featured predictions that Apple would substantially increase the price it charges to Mac compatible manufacturers for copies of the Mac OS. Such a move by Apple would allow it to recoup a larger share of the growing Mac-compatible revenues, to strengthen its finances and perhaps increase research and development expenditures.

However, Apple is not competing in the operating system market against its licensees. It is competing against Microsoft Windows. It is the more rapid progress of Microsoft's operating systems, and the price/performance lead of the Intel PC platform, that is the fundamental threat to Apple's survival.

Motorola is showing how to make excellent leading edge Macs at attractive prices, setting a standard that Apple would do well to surpass, if it can.—*JE*

Contact: Motorola. Web site: http://www.mot.com/

Global Village introduces 56Kbps fax modems • Global Village Communication recently upped the speed-limit for Macintosh computers on the info highway with the announcement of two forthcoming 56Kbps analog faxmodems, available in either the X2 or K56flex technologies.

The new technology represents the biggest modem performance improvement since the early days of modem technology, with typical connection speeds almost double that of what is in wide use today. Hundreds of Internet service providers and online services have announced support for both technologies.

Continued on page 59

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AMD AK5-166 P166	859	1249	1499	1659
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AMD AK6-200 P200MMX	1266	1679	1925	2089
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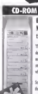

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continued from page 54

resulting in widespread accessibility to 56Kbps services

Global Village's TelePort 56 family of products support Internet download speeds up to 56Kbps. They also support standard data modem transmission speeds of 33.6Kbps and are compatible with prior modem standards. They support fax speeds of up to 14.4Kbps and are Group 3 compatible. The modems come standard with a five-year repair/replace warranty.

Neil Selvin, chief executive officer of Global Village, says his firm has designed its new 56Kbps modems "specifically for Macintosh users who are asking for both X2 and K56flex technologies so that they can access their favorite Internet service providers and online services."

The TelePort 56 products are expected to ship by early May and will have an estimated street price of $289. Global Village will announce an upgrade program for registered users when the products ship. Global Village provides a listing of ISPs that provide support for the X2 and K56flex modem standards at its 56 K modems site. —*KS R*

Contact: Global Village, Tel: 416 620 6651
Web site: http://www.globalvillage.com/
or http://www.56kmodems.com/

Global Network connects Canadian buyers/vendors to world • TORONTO (NB)—International Commerce Exchange Systems (ICES) Canada has launched its Canadian operation in Toronto with an introduction to its business-to-business network, which has been available in other countries for two years.

Ed Foster, ICES chief executive officer, calls the service a significant development in international trade for Canada's manufacturers, wholesalers and distributors. He says the Canadian launch boosts the number of distributors served by the network in 14.

ICES is a New York City-based global network of vendors and buyers linked by fax, email and Internet technology, he explained. "Vendors list products with us and through a sophisticated computer system we match the vendors with prospective buyers," Foster said.

Prospective buyers and sellers log into the network Web site where they find product profiles from vendors worldwide. Foster said that presently the system lists 1 000 vendors and 10 000 buyers. So far, he adds, the Canadian operation has signed 50 vendors and 100 buyers. ICES is concentrating on apparel, jewelry, housewares, electronics and general merchandise. Future plans call for expansion into a wider range of products and services.

Vendors pay an annual fee of about $5 475 (based on an exchange rate of US$1=$1.37), while buyers pay $4.79 per inquiry. Foster says the network receives approximately 4 000 inquiries a day. —*Martin Slote*

Contact: ICES Canada,
Web site: http://www.icesinc.ca

What's New is compiled by Jeff Evans, Keith Schengili-Roberts, Laverne Bennett, David Tanaka and Megan Johnston.

Free Usenet news on the Web • NB—Getting access to Usenet news from a Web browser and without your own news server is easy through Feed Me. The service presents many of the Usenet news groups available in the alt, comp, bionet, misc, news, rec, sci, soc, talk, and vmsnet hierarchies. You can read messages from the Web page and the ability to reply to them will be added soon.
Web site: http://www.feedme.org

Natural Science magazine online • Natural Science is a new Canadian online science magazine. The first issue that went online yesterday includes articles on ecology and biology. A research report on infrared radiation from comet Hale Bopp is also included, plus details of the history of fingerprints on mammals. Brief news capsules, editorials and commentary round out the entire publication, which is expected to be updated weekly.
Web site:
http://naturalscience.com/ns/nshome.html

Lily Wong back for the hand-over • NB—One of the most famous cartoon strips in Asia, *The World of Lily Wong*, is back! The Hong Kong cartoon was pulled from the *South China Morning Post* in May 1995 after insulting Chinese Premier Li Peng, but for the last 100 days before the hand over to China, *The Independent* newspaper in the United Kingdom has brought her back. Find out all the details, plus some strips online.
Web site: http://www.asiaonline.net.hk/lilywong

Recommendations from people like you • NB—The Unlock Web site has a simple philosophy: real users like you can probably better tip off others to great new books, CD, movies or games than magazines or big commercial review services. To put this idea to the test, they have created the Unlock Web site that offers you the chance to put up a review of your favorite software, restaurant, CD, movie, computer hardware, video game, travel destination and more. You can contribute or read the selection already online. It's a new service so don't expect thousands of selections now. While the first page is easily accessed, subsequent pages require a frames-capable browser.
Web site: http://unlock.com

A poem a day everyday • NB—Poetry Daily is an online anthology of the best contemporary poetry in print, offered one poem per day on the World Wide Web. Each poem is accompanied by detailed information about the featured poet and book. Daily poetry news and an archive of past features are also available from the site.
Web site: http://www.poems.com/

Ukraine online resource • NB—InfoUkes is a Web site all about the Ukraine. Most of the pages lead to links to other sites but there is some original information. Sections include news and media, a history of the country and region and a map server which includes general city, road and topographical maps.
Web site: http://www.infoukes.com

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Zaurus 3500X
From Sharp Electronics of Canada
Estimated street price $600

From Sharp minds come the ZR 3500X

Non-Windows CE palmtop impressive

BY ROD LAMIRAND

The Sharp Zaurus 3500X is a wonder The package is complete and the software extensive You can keep hundreds of names addresses dates appointments notes numbers spreadsheets documents and other items in it The Zaurus Application Partner for Windows 95 software that comes with the palmtop installs easily and allows for simple drag and drop transfer of data The mini applets are good unto themselves and some work has been taken to make synchronization compatible with popular calendar and contact management software such as ACT and Schedule+ 7 0

The word processing and spreadsheet programs are saved in Microsoft Word and Excel file formats The built-in communications program makes emailing a simple matter of setting up your Internet service provider access and sticking in the plug. Using the included Z-Email software you can add attachments

The specs

This little unit is a 135 g (11 8 oz.) computer measuring 16x8 9x2 54 cm (6 3x3 5x1 in) and uses two AA batteries or an optional adapter The unit has a 320x240 pixel LCD touch screen that can be backlit when needed The keyboard is QWERTY style and there is a touch-screen stylus that slides into the case.

On the right side of the diminutive machine is a built-in RJ 11 telephone jack and data/faxmodem On the left side is a communications port for connecting to a desktop computer And on the back, there is an infrared port for wireless data transfer Its operating system is Synergy (This is not a Windows CE device)

Along the sides of the unit's screen are touch sensitive buttons that take you to the various program components Email Spreadsheets Outlines Documents Notes Data Files Contacts, Activities Tools Search Scrapbook Calc PC Links and more The computer has 1 MB of RAM plus an additional 1 MB flash memory for program storage

Living with the Zaurus

I carried the Zaurus around for a month and found it to be very nice There is a certain amount of time needed to get used to the unit's conventions Unlike Windows CE machines the procedures used to accomplish various small functions were new to me That is not say they are bad or poorly crafted but rather, I was new to them and therefore some learning was needed. Sharp claims Windows CE has considerable overhead because of the screen space taken up in Windows by things like the title bar and other unnecessary graphics This may be true but is offset by the greater ease of use Whether this ease of use is due to the more intuitive graphical user interface of Windows CE or simply due to my exposure to Windows-style conventions, I couldn't say But by early in the month I had no problems navigating the various programs nor executing the jobs I needed to perform on the Zaurus.

This palmtop like some others, does not try to read your writing It has no optical character recognition (OCR) function nor simplified graffiti alphabet but it does include an electronic ink feature that allows you to jot down a note and save it for later Or, if you like you can type in a note You could also type a fax or letter on your desktop and then either mail it to yourself or drag and drop it as a document file into the Zaurus.

If you have an infrared device for your computer or printer you can connect to it without even taking off whatever happens to live on your parallel port That is one of the benefits of the new palmtops and personal digital assistants that come with docking stations and one button synchronization These units eliminate the hassle of having to constantly access the back of your desktop computer.

All in all Sharp has managed to put another very powerful little computer into the pockets of business men and women who want to be on top of things at all times. The ZR 3500X is a real business tool that is always in touch. ❑

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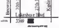

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Laptops on airplanes

Continued from page 20

Battery life is likely to be the biggest challenge, so be prepared to follow a few simple rules to squeeze the longest life out of your system. To start with, have a little bit of a game plan, one that probably should involve not playing games on the computer. There are lots of other things you can do to entertain yourself that will not drain your batteries—reading, playing cards, watching the in-flight movie or just relaxing. A few other tips:

- If you have a notebook computer with a swappable CD-ROM drive, take it out of the machine and put your floppy drive back in. Even if you are not using it, just having it in your system will waste battery resources when the computer goes to check it every time you switch on. So load any applications you know you'll need from the CD-ROM before you set off.
- Avoid disk intensive tasks such as formatting floppy diskettes, defragmenting your hard disk or file management. Accessing your hard disk soaks up lots of power. If you have work that can be done with applications that are primarily memory-based and do not need to access the hard disk often (such as basic word-processing), make that the kind of work you set aside to do on the plane.
- Take PC Card modems out of your notebook. The very act of having them in your system will drain some battery power to keep them "awake" and ready to use. Unless you know that you want to plug your modem into the in-flight phone system, tuck it safely away in your briefcase and don't let it draw more battery power.
- Make sure your batteries are fully charged, that your power management software is enabled and that—if you have spare batteries—they are fully charged and packed in your carry-on bag. In addition, you may want to keep your AC adapter in your carry-on luggage, particularly if you have a stop of more than a couple of hours between flights. That way, you can plug into an AC outlet while in the transit lounge and have fully charged batteries when you resume your journey. ❑

Tracking down stars of the '70s and '80s • NB—The Washed Update is a place to go for anyone that ever asks the question, "I wonder what ever happened to..." The column, which can be found on the Internet Movie Database site, tracks down TV and movie stars from the '70s and '80s and reports back on what they're doing now. Recent columns have tracked down cast members from *M*A*S*H*, *Charlie's Angels*, MTV, and the *Police Academy* Movies. Web site: http://www.imdb.com/washed-update.html

Online magazine covers computers in education • NB—TC World is an online magazine for technology coordinators in education, but the articles will also be of interest to parents and others interested in online issues. The current issue includes three articles: "Keeping It Digital" about integrating Netscape use with other applications, "What to Expect When Every High School Student Has a Personal Email Account at School" about coming trends and "Purchasing Software at a discount for Your School" and how to save money. Web site: http://www.tcworld.com

Maturity of Psion hard to beat

Series 3c latest release from experienced palmtop manufacturer

BY GEOF WHEELWRIGHT

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While there is a lot to be said for handheld computers that bear the Microsoft Windows CE label, sometimes labels don't tell the whole story.

They don't, for example, say much about the experience that the manufacturer behind the Windows CE label has in actually producing useful and productive handheld computers for the average person. That's why some users may want to look beyond the Windows CE machines when considering the purchase of a handheld computer.

Inexperience is not a description that could be laid at the feet of Britain's Psion Plc, the makers of Europe's long-standing most popular handheld computer range, the Psion Series 3. The Series 3 was first unveiled in 1990 and was so named because it represented the third series of handheld computers Psion had designed since 1984.

The latest Series 3 model, the Series 3c, was unveiled late last year and compares pretty favorably to anything you'll find on a Windows CE system. It provides an onboard spreadsheet that is more powerful than Pocket Excel (yet can be transferred to a desktop PC in Excel format) and a word-processor that offers a lot more than Pocket Word (including the same file format transfer capabilities, along with a built-in thesaurus and spell check). There are also the address book and time management applications that you would expect on such a machine, along with a game.

The real joy of working with this machine is that you get a true sense of the maturity of both the onboard software and the design of the machine. Psion uses a simple—but effective—keyboard and menu driven interface with all its applications, so there is no messing around with trying to issue pen-based commands to the screen.

In fact, the great thing about the Psion overall is that everything works as you would expect it to. Using the PC file transfer software package that you can buy with the machine, all the files move over to the PC and open in PC applications properly. And there's even a Windows version of the address book enclosed so you can do all of your data entry on the PC and then transfer it to the Psion.

Storage is provided either via the onboard 2 MB of RAM or via Psion Solid

Continued on page 71

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The future belongs to the WiReD

The PCS experience

BY GEOF WHEELWRIGHT

A few years ago there was a television ad campaign that deeply affected me It was for the products and services of United States telecommunications giant AT&T and featured someone being able to "send a fax from the beach" using a handheld computer and wireless communications link. "One day you will " or something like it, was the TV announcer's tagline

I saw that and I wanted it And my desire was not necessarily for the reasons you might think I started sending "faxes from the beach" using laptop computers and acoustic coupler modems (which I would hook up to a pay phone) about 10 years ago but have rarely found it as satisfying or easy an experience as the bronzed types in the aforementioned commercial would have had us believe

Connections were always unreliable expensive and hugely frustrating I still remember with great angst the half hour or so I spent at a pay phone in the town square of a small French village on the way to Nice in the summer of 1987 I was trying to get my Tandy Model 100's acoustic coupler to send my email before the batteries on the acoustic coupler (or the computer) died—all the while furiously feeding French francs into the pay phone as my friends sipped cafe au lait and enjoyed fresh morning croissants.

In those days it was almost inevitably faster and cheaper to dictate my copy to some kind soul at the other end of the phone Now fast forward to the summer of 1995 when I took possession of a Motorola cellular "flip phone" and an Epson PC Card cellular modem at my home office in Vancouver.

Using these pocket sized devices alongside my notebook computer a whole bunch of things became possible Soon I was surfing the Internet from the comfort of my local coffee shop filing stories while watching my daughter at her skating lesson—and even sending a fax from the beach.

And it was all a lot more painless and hassle free than ever before. There were still a number of issues to watch (which I'll get to), but the overall experience was quite liberating meaning that I could count on being able to file stories and send information wirelessly from wherever I happened to be

Getting and staying online

I can however offer a few tips for anyone considering doing the same thing The first tip is to make sure you have a clear and clean connection from where you are calling. So before making any data calls try making a voice call to someone even if it is just to the operator If the line is scratchy or reception poor, you may want to reposition your antenna before making your data call

The second tip is to make sure that you know the order in which things need to be switched on. In my system, for example, the computer and modem had to be powered up before I switched on my mobile phone.

Thirdly, you should think about which numbers you need to call before settling on this solution In my situation, I did experience some frustration in being unable to direct-dial calls to the United Kingdom from my cell phone with my account with BC Tel Mobility (the local cellphone service provider)

If you are thinking of trying out one of these new digital PCS phones or data cards, consider the experience of *Computer Paper* contributing editor Geof Wheelwright when he tried out the European version of PCS (known as GSM) last summer in the U.K. ...

And this did mean that I was unable to file stories directly to customers at their access numbers in the U.K. unless I was willing to put up a deposit in the region of $1 000 against the potential overseas long distance charges I might incur. Instead I use my BC Tel calling card to make operator-assisted voice calls to the U.K. and wait until I can connect to a land line to send any stories that need to go directly to a U.K. telephone number. Finally I was also unhappy about the fact that incoming calls incurred charges on my account—a situation that is pretty universal throughout North American mobile phone systems This made me reluctant to give out my cellphone number—particularly to anyone out of area—as all incoming calls were charged at the highest rate (as they were not made with the use of my discount calling plan)

Jump now to May and June of 1996 when I decided to do a first hand comparison of U.K. and North American wireless data offerings I spent three weeks in the U.K. doing research for some stories visiting with editors and filing some stories remotely For the duration of the visit, I made arrange-

Continued on page 69

Is there a doctor on board?

Technology could also soon be helping people who get sick while travelling by air. A European Union project is under way to test the viability of in-flight conferencing for telemedicine. The multi million dollar project is an offshoot of an ongoing three-year EU project called "Hermes" and involves a four party consortium: Oxford University, SITA (Société Internationale de Telecommunications Aeronautiqués), Healthskills, and Huntleigh Diagnostics.

The consortium members recently announced that they are close to starting trials for what they say will be the world's first commercially available telemedicine service to allow medical experts on the ground to monitor the condition of patients in-flight, at any time and anywhere in the world.

Initially the consortium says it will focus on "providing effective expert medical diagnosis and advice" should a passenger become ill during a flight. Further, it suggests the service could have major implications for airline passengers who previously would have been unable to travel as health insurance may not have covered them.

The consortium says in-flight medical diagnosis using telemedicine will involve use of a portable monitoring device (which will be stowed on board the aircraft) in conjunction with a communication link to a ground based medical facility. The patient's "vital signs," such as oxygen saturation, temperature, blood pressure and those generated by an ECG, will be monitored continuously and the information transmitted in real time to an appropriate medical expert on the ground. *—GW*

The PCS experience

*Continued from page **68***

ments to make use of a Digital Equipment Corporation HiNote Ultra notebook computer with CD-ROM and sound capabilities alongside a Mercury Communications Mobile Services DataMotion data transfer package with Nokia data card and connection and a Nokia 2110 GSM mobile phone.

The computer came first and it was a lightweight but surprisingly powerful little beast that easily allowed me to install my applications and data from the CD-ROMs I had brought with me. Then came the DataMotion kit, which gave me my first real experience of modern wireless digital data communications over the European GSM network (which has the benefit of greater digital capabilities than most North American cellular networks, which are still largely analog).

The system was easy to install and configure with Microsoft Windows 95 and the Digital HiNote. The data card was extremely clever in the way that it handled the wireless data calls, emulating the functions of a standard modem without many of the disadvantages of modem technology. Because the data card and the phone were not needing to modulate and demodulate information (i.e. turn it from digital to analog information), this made it perform much quicker than its rated 9600 baud specification would have initially indicated.

It was also more cost-effective than the North American analog systems I was used to, as there was much less in the way of line-dropping (meaning I was not constantly having to redial and establish connections till I got line noise and interference). With a digital connection, either the connection was made or it wasn't. There were no frustrating "halfway" connections that faded in and out.

The other pleasant surprise was that there was no extra charge (over and above airtime) for incoming calls. This made it much more reasonable to have people call me without me worrying about my bill skyrocketing.

European coverage was also good. I found the system worked just as well from a hotel room in Paris as it did from a restaurant table in London. The system automatically figured out the necessary connections and left me free to get on with my data communications.

My only quibble would be with the coverage in certain areas. In parts of the Northhamptonshire countryside—particularly the village where I was staying—the reception was uneven and I could not always get a signal. In North America, that has been less of a problem. I have even made calls from the tops of ski mountains without difficulty.

This irritation aside, wireless data communications—in the U.K. and North America—is one of the most liberating developments I have enjoyed over the past five years and I expect that as wireless data networks continue to expand and diversify, things will only get better from here on in. ❑

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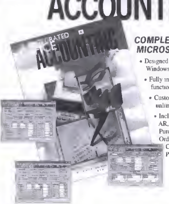

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Maturity of Psion

Continued from page ***63***

State Disks (SSDs) that hold up to 4 MB each The Series 3c has room for two such devices. Connectivity is via infrared link (new to this edition of the machine) or a serial cable link.

The serial cable connector can also be used to plug in an optional PCMCIA modem card cradle that will allow you to use PC Card modems with the Series 3c. Psion also sells its own proprietary Travel Modem that offers the benefit of running off its own AA batteries and therefore does not drain the two AA batteries in the Series 3c itself

There are also a few goodies in this machine that you just couldn't find in any other handheld such as the voice recorder (although the just released Philips Velo and the latest Newton MessagePad allow voice recording) Rather than jotting down notes to yourself when you are in a hurry, you can record short voice files that can be used to remind you of things Those voice files can also be used by the alarm clock software that comes with the machine—letting you associate a file that might say "Time to leave for your meeting" or anything else you like when your alarm goes off

All of that being said the machine is still not perfect It is only recently that a backlit option has been available and the infrared option is not as easy to use as on some other handhelds It also cannot run any DOS applications (where the HP 200LX can) and the email and Web browser applications available for it are not included in the price of the machine (although a simple terminal program is bundled with the machine)

For me, however, these are little more than quibbles. I have used many different handheld computers but I always seem to come back to this machine And whenever I do It is always like coming home ❑

Contact Psion Plc Web site http //www psion com/

In-seat plugs for in-flight power

Running out of battery power on your laptop computer midway through a trans-Atlantic plane flight could soon be a thing of the past Several airlines—led by Delta Air Lines (which is running a trial scheme) and quickly followed by American Airlines late last year—are installing in seat laptop computer 12-volt DC sockets for first-class and business-class passengers.

American Airlines installed the first such "power ports" in one of its Airbus 300 transAtlantic planes in December and has said it plans to upgrade many more of its Airbus fleet in this way throughout the rest of this year The company says that any laptop user who has a standard 12-volt cigarette lighter power adapter (commonly used to power laptops when used in a car) will be able to get power from the in-seat socket

So if you are planning to book a flight on American Airlines you'll now have another question to ask your travel agent—so that you get that window seat in business class on one of the planes that has been equipped with 12 volt power for your laptop!—GW

Guide to the Russian Internet • NB—Rossiya Net is a bilingual index to Web sites and pages. Everything is presented in Russian, and then English and covers subjects from news and magazines through TV and radio to cities and finance and business

Web site http://www russiya net

The world's first digital movie studio • NB—In Hawaii a group of investors is busy creating the world's first fully digital movie studio This doesn't just refer to the technology on use in the studio but everything! Even the actors and actresses are computer generated and you can get a glimpse of what some of the studio s first productions will look like at their home page It's a wild idea!

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Wireless solutions for handhelds

Burnaby's Infowave develops remote access product for Windows CE systems

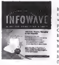
BY GEOF WHEELWRIGHT

Burnaby B.C.-based wireless communications company Infowave Wireless Messaging Inc. wants to unchain the handheld computer. It has designed a series of products aimed at making it as easy to send email wirelessly from handheld computers as it currently is from desktop computers using standard land lines.

Probably the most high-profile of these efforts came late last year when Infowave announced a deal with software giant Microsoft to produce a wireless communications services product called Infowave CE, for use with the new breed of handheld computers based on Microsoft's Windows CE operating system.

The announcement drew some welcome support from the world's most high profile software company and promises to give a big boost to the small B.C. company.

"We're extremely excited by the opportunities now possible through Infowave's two-way messaging software for Windows CE," enthused Jon Magill, Microsoft's director of marketing for its consumer appliance group at the time of last year's announcement. "Infowave's wireless enabling software and Windows CE, allows handheld computing to expand to its full potential for business users."



The Infowave CE software is designed to let users of Windows CE-based handheld computers wirelessly send and receive corporate email, Internet email, faxes and receive Web pages.

According to Infowave vice-president of sales and marketing Rob Boyko, this solution should have big appeal to corporate computer users who need to keep in touch with their offices without the weight and expense of a notebook computer and cell phone. "The implications for corporate users are significant. With Infowave CE as the client and Infowave Update as the server, talking to corporate email systems becomes seamless," he says. "Microsoft Exchange, Lotus Notes and cc:Mail, Netscape Mail and Novell Groupwise users now have cost effective, wireless, real-time connectivity."

Infowave CE is not the company's only wireless project to attract major interest in recent months. In early March, the company announced something it calls Infowave Office Enabler, which it claims provides "native wireless, seamless and secure access" to corporate messaging systems.

It is a broader corporate email access system than Infowave CE and is designed for business people with standard notebook computers who want to have total access to the online information in their company remotely.

Infowave president Jim McIntosh suggests that Office Enabler is much more powerful than anything his company has previously produced and should result in substantial cost savings over more conventional long-distance and cellular dial-in remote access solutions.

"By wirelessly extending an organization's messaging system and linking remote users to internal and external information sources, corporations will realize significant employee productivity gains," he says.

These wireless solutions have garnered several high-profile partnerships with leading software and telecommunications players. In addition to its work with Microsoft, Infowave's other partners include IBM and its subsidiary Lotus Development, Novell, US Robotics, Cantel, AT&T, Ram Mobile Data and Ericsson.

These partnerships mean that with Infowave Office Enabler, for example, users can wirelessly link to a company's messaging engine "natively" through the standard email "client" applications (such as the Microsoft Outlook/In Box, Lotus Notes or Lotus cc:Mail clients). Infowave claims that this extends the reach of the messaging systems without provoking large training issues.

The partnerships also give Infowave a broader international reach as they allow the worldwide deployment of products such as Infowave's Office Enabler when used with Infowave's server software, which is capable of maintaining simultaneous connections into various wireless carriers, including RAM Mobile Data (Mobitex), GSM and CDPD.

In recognition of the fact that many corporations want to minimize the amount of time their users spend having to send data over wireless networks, Office Enabler includes a "message header preview" that lets users see the first line or two of the messages in their mailboxes and then decide whether they want to download the whole message.

Infowave's Boyko is optimistic about Office Enabler's chance of making a significant impact on the wireless data market. "Current remote access is costly, difficult to train, configure and manage," he says. "We're seeing strong demand from corporate and institutional clients who are anxious to leverage their investment in productivity tools for their people, such as email and calendaring."

Infowave is likely to be further assisted by the many recent improvements and planned implementations of enhanced wireless services all over Canada. The most important of these, at least in the short term, is the PCS (Personal Communication Service) digital network, which has long been in use in Europe under the GSM banner. Infowave's existing ability to work with such networks should give it a "leg up" on many competitors who will be working with PCS communications technologies for the first time as they attempt to design wireless data services to run over the new networks.

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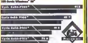

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GigaByte Triton-III VX P-166Mhz CPU 512k Pipeline Cache	[illegible]
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PENT 166 MMX MHZ	$1745.00	$1995.00	$2095.00	$2420.00
PENT 200 MMX MHZ	$2020.00	$2270.00	$2370.00	$2695.00
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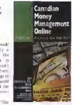
Filthy lucre (and how to get more)

Best-selling authors offer a little too much to think about

BY ROD LAMIRAND

Canadian Money Management Online
Authors Jim Carroll and Rick Broadhead
From Prentice-Hall
ISBN 0-13-494832 7
Price $24 95



This is an awful book! Well it's actually a great book, but the frustration it causes is awful—because you can't ever get through it. Every other page no every page in fact you will find yourself stopping to think about the enlightening little notes called Tidbytes.

Such as this one "The Canadian Automobile Association estimates that the annual cost of operating a car in Canada in 1995/1996 was $7,714.75, or 32 1 cents a kilometer."

It took me 15 minutes to calculate how much it was costing me for my car and then I spent the next week coasting down every hill I drove.

Worse than this every bloomin' good idea they have about using your computer and the Internet to get your financial house in order has a time consuming, informative Web page address.

Such as this one "Gordon Pape, the well known Canadian financial writer, has put online a chapter from his book, *Retiring Wealthy*, which includes a worksheet and tips on calculating your net worth (http://www.gordonpape.com/nw.html)."

Another hour gone and I'm not even through a tenth of the book.

Canadian Money Management Online by Jim Carroll and Rick Broadhead the best selling authors of the *Canadian Internet Handbook* have written a great financial resource and a wonderful read that you may never finish.

The book is half financial primer, half Internet reference, half interesting statistics, and 150 percent Canadian. Chapters such as *Personal Finance on the Net* and *Examining your Financial Health* are followed by the likes of *Financial Institutions, Credit Taxes Mutual Funds, RRSPs Insurance*, and *Investing*.

Each section has clear and straightforward financial advice that puts the money basics into plain language and directs the reader to useful Web sites and/or snail mail addresses.

Here is an example Carroll and Broadhead insist you take an assessment of your net worth, after which they have this simple yet honest comment. "If your net worth is negative you clearly have a problem. If your net worth is less than one or two months of your annual income you are not in terribly bad shape. If your net worth is more than twice your annual income you are doing okay."

That's a simplification of their explanations but you can see they don't play around too much with the truth.

And just when you have managed to go two pages without getting off track and learning something more, along comes another Tidbyte "A 1995 Royal Bank/Environics survey found that two-thirds of Canadians over estimate—often by three times or more—the minimum down payment required to buy a home." And you're off to the MLS Online page to check out the local real estate market (http://www.mls.ca).

At 301 pages, not including Rick and Jim's *Top Personal Finance Picks* the book deserves a couple of good months of your time and should be excellent reading for years. With chapters on practically everything from banks and credit unions to investment houses and insurance companies, *Canadian Money Management Online* is a great and timely resource for both the novice and the expert. Simply as a reference it justifies your purchase.

There is only one real downside to this book. Over time some of the Web addresses will invariable change or cease to exist, in which case they will be of no use. However, many of the institutions and companies represented here are stable long term players that will maintain the same addresses indefinitely. Aside from this very small caveat there is nothing but praise to be found here for the latest effort from Canada's best-selling authors.

Except of course the fact that this book is too interesting! Come on, guys. You could have saved half this stuff for another book and saved us all that extra time. How do expect us to get through the book quickly when you are giving us intriguing little things to think about, like this "According to Deloitte & Touche, as many as half of Canada's economic banks will close within the next few years because of technological change. The closures may result in job loss of as many as 35,000 in the retail banking sector." Hmmmm, food for thought ❑

Contact. Prentice Hall Canada.
Web site http://www.phcanada.com

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BY ROD LAMIRAND

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In January Versus Brokerage Services Inc. and E*Trade Group Inc., headquartered in Palo Alto, Calif. announced their entrance into the consumer online investment service for the Canadian marketplace. The new group, under the name E*Trade Canada, is part of a global expansion of the American E*Trade Group.

www.etrade.com

"The E*Trade Canada service allows the consumer to take the next step in the evolution of trading and investment portfolio management," says Colleen Moorehead president of Versus Brokerage Services Inc.

The service can be accessed by either touch-tone phone or the Internet. The Internet service employs a browser, user ID and password to gain entrance to the E*Trade Web site. To access the Web site Netscape Navigator 2.0 or higher, or Microsoft Internet Explorer 2.0 or higher is required.

With a minimum $1 000 balance investors can begin to purchase Canadian securities. Moorehead adds "As we enter phase two of the development of this service, we will provide customers with trading ability through the Internet to the major U.S. stock and option exchanges. U.S. customers of E*Trade will also be able to trade Canadian securities at that time."

E*Trade Canada's pricing is based on a flat fee of $38.88 per transaction for stocks and mutual funds. There are also a number of value-added features available such as breaking news, price charts, fundamental data, mutual fund performance data and earnings estimates.

Versus Brokerage Services Inc. is owned by Toronto-based Versus Technologies Inc., founded five years ago, and has over 70 clients who are institutional money managers and investment dealers. Versus is linked to the major Canadian and U.S. stock exchanges and the trading desks of participating investment dealers through the Versus Trading Network (VTN)—a private and secure electronic network that provides access to the exchanges. ❑

Contact: E*Trade Versus Technologies Inc., 3810-181 Bay St., Toronto ON M5J 2T3 Tel: 888-TRADE-88. Web site: http://www.etrade.com

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Putting your financial house in order

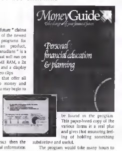
MoneyGuide helps you diagnose and learn about your financial health

BY ROD LAMIRAND

Money Guide
From CCH Canadian Ltd
Estimated street price. $89 95

"Take charge of your financial future" claims the box for MoneyGuide, one of the newest personal financial planning programs for Windows. This all-Canadian product, "designed for Canadians by Canadians" is a slick little CD ROM program that will run on a 486 with a minimum of 8 MB RAM, a 2x CD-ROM drive, a sound card and a display showing 256 colors for the video clips.

There are many programs that offer all sorts of things pertaining to money and finances, to the point where you may begin to throw up your hands. However, this program fits nicely between a financial calculator and a multimedia tutorial. It is neither a finance management program like Quicken nor computer-based training. Rather it lays out all aspects of an individual's financial life, explains the basics, then the details, then takes your personal information and finally gives advice on how to implement your plans.



MoneyGuide uses a central character, Max, to lead you along and explain certain things. His well-acted videos are sprinkled throughout the very comprehensive CD-ROM content. At times, other more professional characters come on screen to explain how to check your credit rating or the difference between whole life and term insurance, for example.

The lessons are automatically bookmarked and you are asked if you would like to return to that point you left off when you return to the program. The overall feel of the MoneyGuide is smooth and rich, the tempo is excellent and the hints are a nice touch. The fact that the program leads from theory to practice after each section is just what you would want.

If you don't want to fill out the investment or retirement information, simply continue. If you do decide to go through the process of calculating the amount you might need for your child's education, the information is saved to disk for later consideration. If you are security conscious regarding financial software, as a recent Letter to the Editor suggested you should be, the program will save to disk or not save at all.

MoneyGuide comes with a workbook that includes a number of forms for calculating various financial data, such as tracking your expenses, and other information that can also be found in the program. This paper-based copy of the various forms is a real plus and gives that reassuring feeling of holding something substantive and useful.

The program would take many hours to complete and could come in handy whenever a major life event arrives and changes your financial priorities. The main sections break down into Goal Setting, Cash Management, Insurance Planning, Investments, Income Tax, Retirement Planning, Estate Planning and Tips.

Each section is further broken into four parts, and takes approximately an hour or more to complete. Often the program admits that some matters need a professional's hand and it recommends you contact a specialist. Many practical questions are answered, for example, whether you should pay your mortgage or buy Canada Savings Bonds (the answer depends upon various factors, but generally in today's environment, paying the mortgage is smarter than investing in short-term, low yield, taxed investments).

Overall, the program is one that could be used by a wide variety of people with varying levels of financial knowledge.

There are many bigger, slicker, all-in-one financial programs out there, and there are many smaller, duller ones as well, but this offering is a perfect mix and an excellent program for almost anyone. MoneyGuide is the kind of program that you could really get to know. Imagine a nice patient banker who could sit and explain everything to you as slowly as you like—that's MoneyGuide. ❑

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Trading vicariously on the Komodo Market

Game lets you buy, sell, lose big on virtual exchange

BY ROO LAMIRAND

Komodo Market
From Komodo Software Company
Estimated street price, $29 95

If you ve ever wanted to stand on the stock market floor and yell "Buy 10 000!" but don't have the $10,000 the trading licence or the stomach for it, here is a software program for you. Komodo Market is a game of trading and speculation in the equities and options markets. It is not just a game, though

This small Canadian program began its life as shareware and has grown into version 1 5 a commercial program that is as life-like as it gets The idea is to make money You begin each game with $10 000 and have two years to trade (equal to about four real hours) A game ends after the two years of trading or if you get too far in the hole.

The types of trades you can make in Komodo Market are just like the ones you make in the real world As a trader you buy and sell stocks with cash or on margin. You have the ability to buy and sell both equity and index options. Purchased options can be exercised or closed out Sold options can be closed out or exercised against you You can borrow money from the bank, and you have monthly income and expenses. Like the real trader you ll get margin calls and mailed confirmations from your broker

Komodo Market will do other realistic things like exercise certain option positions to cover sold positions not all orders can be filled immediately, and you can place AON (all-or none) and Any-Part Orders You can put price limits on both buying and selling stock.

Just like in the real world, trades keep on happening regardless of what you do If you don't watch the ticker bar at the bottom of the screen you might miss important news headlines that will affect the direction of a stock. It takes a sharp eye to keep on top of the news, while investigating a company's historical financial record.

However, there are a few things that you, the Komodo Broker can do that are not very realistic. For example Komodo Market will let you go on trading even if you have a lousy record. Also, you can make up your own company files to replace the ones that come with the program. And of course, you can lose as much money as you want without being barred from trading.

You can also run the Q & A developement program that tests your general investment knowledge and/or add new questions More edutainment than entertainment, Komodo Market is a real introduction into the art of stock market trading. ❑

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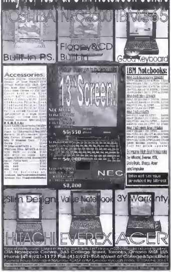
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Smarter sheets ease calc chores

Big three office suite spreadsheets help you get more from your numbers

BY GEOF WHEELWRIGHT

In all the recent publicity about the "war" for market share between the three big office suites, a few things have been lost.

One of the important facts that seems have been missed by many is just how powerful and "smart" the latest generation of spreadsheets have become. As they are absorbed in the office suite as a whole, perhaps this is natural.

But remember spreadsheets were the pioneering application that really put PCs on the map—and all three of the major spreadsheet applications are still available for purchase on their own (in addition to being available within a suite).

The Lotus position

A great example of the new intelligence in spreadsheets can be seen in Lotus 1-2-3 97, which is being promoted as the "Web-enabled" spreadsheet of choice.

To start, Lotus 1-2-3 97 Edition for Windows 95/NT marks the first time Lotus has really done a major overhaul of its flagship spreadsheet to exploit both the Windows 32-bit operating system and the Internet. It also contains a lot of goodies that are supposed to help you "work smarter" and get things done more quickly.

Using the new Infobox, for example, you can do all the formatting in your worksheets. To use it, select the formats you want and 1-2-3 97 will show you the changes taking place on screen. In this respect, it is similar to Excel's AutoFormat.

Also similar to an Excel feature (this time, AutoSum), Lotus 1-2-3 97 boasts a new AutoTotal feature, which automates what Lotus says is "the most frequently used spreadsheet function of all." Instead of using formulas or @functions, you just type "total," and 1-2-3 automatically totals the values in any row or column.

In addition, Lotus has included a feature called Dynamic Print Preview, which is supposed to let you simultaneously edit your work and see the changes take place in a "live" preview—before you print.

The variations on Excel ideas continue with a beefed-up feature called Lotus Maps. This is designed to let you quickly chart 1-2-3 data by geographic region and create color-coded maps to analyze location-oriented data.

The same kind of overhaul has been made in the area of charting, where Lotus has redesigned its interface to let you create a chart complete with titles, labels and legends "in a single step." New chart types include 3D bar, 3D line, 3D area, multiple pies, 3D pies, tabular and donut.

Finally, if you have long been awaiting an easier way to create your own applications in 1-2-3 and have never gotten along with the macro language, you may be happy to see LotusScript Library. It includes scripts that help you quickly do tasks such as creating tables of contents for spreadsheets, automatically completing data entry in columns, simultaneously convert multiple files to the

Continued on page **87**

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Looking again at backing up

Personal backup and storage technologies are already cheaper and/or even more practical

BY BOSS MACDONALD

Hard drives have become so big and so cheap of late that we might have expected a smaller market for backup and storage devices. However, software developers are taking full advantage of our new hard drive capacities and writing ever more space hungry applications while the Internet has simultaneously encouraged us all to download massive amounts of information. The result has been a backup and storage industry that's flourishing under increased attention from both manufacturers and consumers.

The traditional solution had long been a tape backup system of some description, and these are still very popular and practical today—especially with their vastly increased capacities and relatively low price. But, several other technologies have additionally been developed to overcome the limitations of tape as well as introduce some flexibility and increase the return on the investment such machines represent.

Data portability, for example, has become a more widespread consideration. As applications get bigger and hard drives get bigger,

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files are getting bigger too. There are all kinds of reasons for wanting to move or remove these increasingly large files: artists creating portfolios of space hungry pictures, legal types wanting safe, incorruptible archives, Internauts doing automatic downloading at night, etc.

As these circumstances have become more commonplace, the following technologies provide a variety of answers to our problems of overstuffed hard drives, huge backup requirements and data removal and moval. Some of the technologies noted here have been around for a while but have become more practical or affordable. Others are newer approaches to the storage problem.

Phase change dual (PD)

PD has been on store shelves for a little more than a year now but is proving far less popular than many—including myself—anticipated. A phase disk looks like a giant floppy, but the disk inside the plastic case looks an awful lot like a CD with lines etched onto it. You'll find the specs for PD drives virtually identical because virtually every drive is manufactured at the same factory.

The different brands—Panasonic, Toray, Plasma, etc.—choose their own cabinets (for external models) and, more importantly, their own drivers and utilities.

PD used to be a luxury item with prices for hardware and media at the relatively high end of things but, as always, manufacturers have managed to bring the price down while adding some refinements in hopes of finally capturing more consumers' hearts.

Its unpopularity is somewhat of a mystery as PD technology itself is ultimately practical. It is re-writable, relatively quick and hooking a PD up to your computer is not unlike simply installing a huge 650 MB floppy drive.

And, just like a floppy, you can drag and drop to it, save to it, copy to it, erase from it and retrieve from it. Which is why they're often referred to as "flopticals." One of the recent improvements is that PDs now recognize and accommodate those backup utilities that compress, automatically schedule, incrementally save and all that other neat backup stuff. This just wasn't possible last year and the ability to perform such true compressed backups was the major factor separating PDs and floppies (apart, of course, from capacity).

Unfortunately, the operational kinship between PDs and floppies also means that the former is subject to the same limitations as the latter. They're fast, but still not fast enough from which to run exuberant games, animation or other speed-sensitive software.

PD drives are based on what's called phase-change technology which, in simplest terms, uses a laser to alter and read the reflective properties of the disk surface, thus encoding whatever information you're putting on it. The key development that makes PD most practical, however, is the single micro lens that automatically senses whether there's a CD, CD-ROM or PD cartridge inside the drive. Those related media each involve rather different technologies and would previously have required different drives.

Writable CD-ROM (CD-R)

Last year, CD-R was a very expensive as well as fiddley solution to data storage and back-

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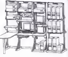

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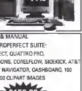

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up the latter largely due to underdeveloped software. Impressively, however, subtle refinements have been developed and applied to the most crucial problem areas so that CD-R is now an extremely practical alternative.

Now, for example, you can simply drag and drop onto the disk in a manner similar to that facilitated by your file manager or Windows 95 Explorer. That also wasn't possible a year ago, and makes CD-R operate a lot more like the other technologies we're looking at here. You have to remember, though, that CD-R remains the only write once, read many (WORM) technology in our survey.

The reason for this is the way CD-R works. The laser in the drive encodes the digital data into the disk's reflective layer by altering its chemical composition. Once that's done, there's no going back because the chemistry only reacts once (you'll recall that PD can rewrite many times because the laser only alters the disk's reflective properties).

Now, you may have heard rumors about something on the way called CD-E, or CD Erasable (i.e., rewritable), but it's been in development for years and isn't likely to appear soon because it's so chemically problematic. And, even if the engineers do succeed in making CD-E work, there's no guarantee that the disk you make will be readable by any player other than the one it was made on. The moral of that story being: forget it for now.

Notwithstanding improvements and refinements to drivers and software, the steps to making your own CD-R disk essentially remain the same—you first create the data you wish to write, then save it to your hard drive as a whole, single file, then write it to your CD-R drive. Keep in mind that, if you plan on filling up the whole 650 MB disk capacity, you'll need that much free space on your hard drive to store the prepared data.

The most common failure in the CD-R process arises from the fact that CD-R lays data down in a spiral, which makes it absolutely crucial to maintain a constant data stream from your hard drive to the CD-R drive. The moment that data stream is interrupted, the disk becomes nothing more than a shiny coaster.

But that's where those crucial software and driver refinements have really made a difference. I spoke to several CD-R users who are much more enthusiastic about their machines now that the process of writing to the disks has been made reliable. The reject rate for disks is now much lower and, in the case of our sample machine, Windows 95 compatibility has also greatly improved.

That means that CD-R has at last become a viable as well as economical means of storage and backup. Plus it's very versatile for other applications too. Artistically, a CD-R can be very handy for creating and distributing the fruits of your talents—whether they're sonic or graphic or both. Make a master, have it copied for cheap, then liberally sprinkle those duplicates among all the suitable outlets.

In the legal professions, CD-R is the best way to make incorruptible electronic archives of contracts, files and all other manner of paperwork—CD-ROM images are accepted by the courts in many jurisdictions as true representations of original documents because they quite simply can't be corrupted.

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It's time for those put off in the past to take a fresh look at CD-R.

A few CD-R tips: 1) always run a simulation before burning a disk, 2) choosing an external over an internal CD-R will maximize drive life, and 3) a CD-R is not a good replacement for a CD ROM drive. Keep your CD ROM drive for playing your CD ROMs (otherwise the CD R becomes a very expensive machine to wear out while doing the job of a $99 add-on).

Tape backup

Tape backup systems have been around for a long time, and for large corporations remain one of the most widely used backup and archiving systems. We'll discuss a couple of systems here that are most relevant to the needs and budget of the typical home or small businessperson: TRAVAN and DAT.

The foremost concern for many contemplating a tape backup system is that tapes write and read magnetically. This means they're far more vulnerable to failure or corruption than PD, CD-R and cartridge drives. Also, because tapes read and record data in a linear fashion, random access to specific files is time consuming to the point of being practically impractical—even in the face of the latest multi-tracking which does, in fact, speed things up.

Further, the backup process usually makes use of a proprietary or very specific format, which can make it very tricky when it comes time to restore any backed up data—especially when stored in a compressed version. And a final drawback for the inveterate backer upper and restorer is tape's distinct lack of robustness.

However, tape storage is getting better, and for that we can largely thank something called TRAVAN technology. TRAVAN was developed by 3M about three years ago and currently stands as the most sophisticated tape system available (outside of DAT, another popular and inexpensive tape backup system). Most tape drive manufacturers now employ it, and any that don't will soon have to.

A tape cartridge marked TRAVAN indicates tape that's both longer and wider to accommodate larger amounts of data. TRAVAN formatted drive mechanisms are designed to optimize writing to the new tapes while amazingly being able to read any pre-TRAVAN tapes you might have made in the past. The most recent development here is TRAVAN TR-4, tapes that offer 4 GB of uncompressed data capacity (8 GB compressed) stored on up to 72 tracks in a single cartridge.

If you want to use TR-4 tapes, remember that you have to buy a drive that's designed to accommodate them. Like all other TRAVAN drives, TR-4 capable drives are backward compatible.

It is the nature of tape, however, to operate in a linear fashion, which means its most practical application is data protection. The extended multi-tracking abilities of TRAVAN go a long way to mitigating this limitation, but tape is unlikely to be able to actually run resource hungry applications or multimedia type stuff in the foreseeable future.

On the other hand, there's nothing else in tape's price range that can back up data in the multi-gigabyte capacities that make it so appealing.

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Digital audio tape (DAT) is an older technology that has been adopted by the computer industry as a means of data storage and backup. And the newest thing in this category is something called DDS-3 (Digital Data Storage-3) which allows up to 12 GB of native data (24 GB compressed) to be stored on a single tape.

Coupled with average data transfer rates of up to 2.2 MB per second, you're looking at very impressive performance from a tape-based system. Compared to other backup systems in this article, DAT machines remain at the wallet-straining end of things for the time being, so they're unlikely to show up near the computers of the masses in the near future.

Removable cartridge

There isn't much to say about removable cartridge systems because they constitute little more than the creation of an infinitely sized hard drive. They work like hard drives, they're just about as fast as hard drives and their capacity exactly matches however many of the removable cartridges you can afford.

The drives themselves come in internal and external versions and the cartridges are small and relatively cheap to buy. They are recognized by backup utilities and their speed means you can run anything from them. Prior to the introduction of PD and the fixing up of CD-R, these were definitely the way to go for just about all storage and backup needs for which speed and money were your only limiting factors.

A slight drawback at the consumer level, however, has long been the relatively diminutive capacity of individual cartridges. They've hovered in the 100 MB to 150 MB neighborhood for quite some time. If you wanted to backup, store or transport anything larger than that, you had to either split it up yourself or back it up incrementally (which means a software prompt would ask for another cartridge when the first was full up but more data was waiting).

Since last year, however, cartridge drives with much larger capacities have arrived at affordable prices, so the convenience and simplicity of this technology can now be fully realized.

Relatively cheap and absolutely simple removable cartridges deserve serious consideration when your backup and storage needs are being addressed. A couple of points to consider no matter which way you think you might want to go:

1) Despite the additional cost, external machines have proven ultimately more practical in the experience of regular users since they can be hooked up to more than one computer as well as being able to travel along with portables.

2) SCSI devices can take advantage of greater data transfer speeds than parallel devices, yet parallel devices are far easier to use with multiple computers due to ease of setting up and because many computers still aren't equipped with a SCSI card. Users who have a lot of experience with devices through both interfaces rather tend toward the parallel interface for data storage and backup as they find the slower data transfer speed a less restrictive trade-off than the demands of SCSI. ❑

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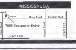

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Smarter sheets

continued from page 78

new 123 format and converting currencies according to the latest exchange rate. LotusScript is a Visual Basic-compatible scripting language that Lotus says you can use to develop your own applications, create custom @functions and automate everyday tasks.

The Excel alternative

Meanwhile Microsoft has worked on making many of the features in Excel easier to use. Microsoft has said that when it was researching the design of Office 97 it discovered that 90 per cent of all the features users were requesting be added to the product were already there. People just didn't know how to get to them—or that they were even included.

Excel 97 sets out to correct this with lots of changes that make features more simple to use and more obvious. For example, if you are creating a formula, the new natural language formula feature will let you build equations using your own terminology instead of cell coordinates. This means that a formula such as =January+February+March is an acceptable way of getting a total of three monthly columns to get a quarterly total—and it doesn't require naming ranges or doing anything complex.

Microsoft has also borrowed a few ideas of its own for Excel 97, mainly from Microsoft Word. These include Formula AutoCorrect, which is supposed to help you "intelligently" fix common equation errors on the fly.

Chart creation has been simplified by adding more to the ChartWizard, so that it now consolidates chart-building and formatting into one place. New chart types such as pie-of-pie and bubble charts have been added to the list of available options.

Meanwhile, the new conditional formatting feature lets you format your worksheets to help spot extraordinary sales, outstanding invoices, or any other variable critical to your data. Microsoft says you can use this feature to set formatting rules to automatically highlight key data points that meet the conditions you specify.

If you do buy Excel 97 as part of Office 97, you'll also appreciate how much more consistency there is between Excel and all the Office applications, with functions such as the Office Assistant help system and the Office Art drawing tools available and operating the same in all applications.

Corel around the corner

There's also a new version of Quattro Pro (part of Corel WordPerfect Suite 8) just around the corner from Corel. Corel WordPerfect Suite 8 is currently in beta and is promised for release in Corel's second quarter (hopefully sometime this summer). Some of the improvements promised for Quattro Pro 8 include an enhanced "formula bar" implementation and a new Join Cell feature that should make it easier to design less-rigid and "grid-oriented" worksheets.

It's more than numbers

With all these features—and lots more intelligence available in the products to help you use them—it is clear that today's spreadsheets are a lot smarter. They can help you get much more out of your data than a few extra calculations and a better way of displaying and formatting it. The real power of spreadsheets now lies in their ability to help you see beyond the numbers themselves, spot trends and create more elegant analyses that let you better understand whatever event the numbers reflect. ❑

Contact: **Corel** Web site: http://www.corel.ca
Lotus Web site: http://www.lotus.com/home.nsf
Microsoft Web site: http://www.microsoft.com

Meat-free zone • NB—A new Web site has just been launched for vegetarians. The Virtual Vegetarian features recipes, advice on health and diet issues, links to other vegetarian Web sites, resources including a vegetarian glossary and advice on how to make food substitutions, and a calendar of upcoming events. The magazine comes from the same people who publish the *Vegetarian Times* magazine.

Web site: http://www.vegetariantimes.com

What Web counter? • NB—If you want to place a Web counter on your Web page you've got a lot of choosing to do. Luckily, a visit to this one page will accomplish what might otherwise take several hours of Web surfing. Nick's Guide To Web Counters offers reviews and information on many counters, trackers and server side applications.

Web site: http://www.hplusis.net/nickp/counter.html

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[illegible]

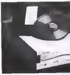
Removable storage hands on

BY ROSS MACDONALD

I recently had the opportunity to play with several machines representing a variety of types of removable storage technology from a variety of manufacturers and what follows is what I saw (Canadian street prices are actual in some cases and in other cases were estimated from U.S. prices using a conversion rate of $1 34 US$1.)

PD drives

LF 1000



from Matsushita Electric (Panasonic) of Canada Ltd Estimated street price $599 internal (LF-1004AB) $649 internal (LF-1004ABK) AB w/SCSI card $745 external (LF 1000AB) $59 each Panasonic PD disk. (Look for price reduction in the future.)

Matsushita, Panasonic's parent company is one of the main innovators of PD drive technology and it also gets the credit for developing the hologrammatic laser mechanism that makes PD drives capable of reading both CDs and CD-ROMs. Panasonic has confirmed the above price reductions and says that the specs remain otherwise unchanged from last year.

The LF-1000AB I received is mounted in a long, slender cabinet that will sit comfortably atop most tower cases without protruding over the sides. The whole unit is only slightly wider than a normal 5 25-inch drive bay. The power button is situated nicely at the front of the machine.

Technical specs for the Panasonic LF-1000AB include a 256KB buffer, a very good 165ms average seek time and a data transfer rate averaging 870KB per second to and from the 650 MB capacity disk.

Using a SCSI II interface, installation of the LF-1000AB is as straightforward as with any SCSI device—that is it requires a bit of understanding of how that interface operates to get the termination and ASPI drivers working in harmony with everything else in your machine. Anyone who's used SCSI before won't have much difficulty

Once installed, you'll actually find two new drives listed for your machine (each assigned the next available drive letter—in my case D and E) D drive is designated as Removable Disk and E becomes my CD-ROM drive, though it is important to remember that both letters pertain to the same device. When I want to access the PD disk, I simply ask for D. When I want to use a CD or a CD-ROM I now have to look to E. Otherwise all else works like normal

The LF 1000AB comes with CorelSCSI for PD software, which injects the necessary drivers and utilities into your system (DOS/Windows and Macintosh versions are both included) CorelSCSI also incorporates an audio CD controller and something called PhotoCD Lab to play with any Kodak PhotoCD images you might have around—but it does not make Photo CDs

To help you along Panasonic has written comprehensive, albeit not entirely simple, manuals to aid you in the installation and operation of your PD and SCSI utilities As listed above, you can buy the LF-1004ABK internal version, which is identical to the regular internal drive except there's a SCSI II con-

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troller card in the box for those who don't already have one

PheseWriter DUAL

From Toray Optical Storage Solutions

Estimated street price $549 external/$593 w/SCSI card $399 internal/$479 w/SCSI card $60 each PD disk $79 SCSI-parallel adapter $99 parallel SCSI adapter (Prices represent a huge drop over last year)

Like all PD drives this machine is capable of performing two handy tasks as a PD drive incorporating a 6x CD-ROM drive (replacing the 4x reader of last year) Toray is currently planning the release of the same machine again but with an 8x CD ROM drive later this year

Stretching things only slightly Toray touts the PhaseWriter DUAL as actually fulfilling three functions in allowing for backup interchangeability and the playing of CD ROMs—which makes for a great savings in both purchase price and computer real estate to those who would otherwise purchase and use all three (tape backup interchangeable drive and CD-ROM)

Technical specifications for the currently available 6x PhaseWriter DUAL SCSI version include a 256KB buffer 175 ms average seek time for PD disks and 160 ms for CDs. The peak data transfer rates are 1,141KB per second for PDs and 900KB per second for CDs. (As usual expect a 30 to 50 percent drop in speed when going through the parallel port) Storage capacity on a PD disk is 664 MB

Arguing for a genuine difference between PD manufacturers however is Toray's claim of having come up with a new recipe for the disk surface "The active layer where information is recorded on conventional phase change media uses just two or three metals to create the alloy that makes up the active layer where critical information is stored," says a company news release "Toray has developed a new formulation by adding a fourth metal to the mix to create a more durable product for vastly improved cyclability Toray PhaseWrite media are rated for at least one million read/write cycles unsurpassed in the industry"

As another SCSI II device installation of the PhaseWriter again harks back to all the pains and pleasures that interface has to offer. But one of the new developments for this year is that you can purchase the external PhaseWriter DUAL in either a SCSI or parallel ➤

Hard drive as backup device

One of the alternatives often overlooked as a means of backup and storage is a second hard drive. It's likely that everyone knows it can be done, but equally likely that few have actually done it. A second hard drive can be set up as a "slave" drive with it's own address and identity which means it's a perfect place for data storage and protection as long as you make a system boot disk and use the second drive exclusively for backing up

Should the most horrible happen and your "master" hard drive actually crash (or get corrupted), you will have copies of your data on the slave drive The only danger, and it's more common than you might think, is that many people eventually fill up the master hard drive and start throwing stuff onto the slave as a matter of course

As convenient as that might be, it opens up the door to having only a single copy of your data on the hard drives, which defeats the purpose of putting in the second one in the first place

The main advantages of a second hard drive is that it's absolutely safe if used only for backup absolutely simple to use (as simple as the original drive at least) very very fast and very cheap on a dollar per megabyte basis at today's hard drive prices

Of course, the major disadvantage compared to all the other methods we're looking at here is that the medium is non-removable so you'll be no further ahead in terms of data portability For those to whom that is not an issue, however, a second hard drive may be the most practical route to safe computing

Of course, an external hard drive is an option to consider, as they come with their own cabinets and power supplies. However, the increase in cost might make other technologies more appealing while the fact that BIOS settings have to altered to address an external hard drive on other computers might make your intended file sharers very nervous when you walk into their office with the unit under your arm.—*Ross MacDonald*

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port version and then as the price list indicates, buy a separate adapter kit to allow use of the machine through the alternate interface. Very considerately Toray has come up with a nice new cabinet for the external models to make carrying the machine around as unobtrusive as possible.

As before Windows 95's formatter will get you up and running just fine through the included software package called PD Pak which allows for low level formatting (that means partitioning the disk as you please plus checking and re writing disk sectors). It is likely most users won't ever want such an option but those who will just have to ensure that the ASPI manager that came with their SCSI controller is the one specified in CONFIG.SYS. Also if you're still using Windows 3.x, you must use PD Pak because Win 3.x can't format the PD disk on its own.

Toray's software bundle also includes the very efficient Seagate Backup utility which facilitates all the handy items you'd expect backup software to do.

CD-R

SureStore CD-Writer 6020

From H P Colorado Memory Systems Division
Estimated street price $700+ internal drive (6020i)
$900+ external drive (es SCSI/ep parallel)
$25 for two-pack of blank CD-R disks

The CD writing machine I received was an external es* SCSI unit comprising a 6x CD-

A special hoard of but not seen product

Panasonic recently introduced the LS-120 3.5 inch floppy drive capable of storing a whopping 125 MB on a single floppy disk. And, amazingly enough, it's backward compatible to the standard HD 1.44 Mb disks and looks just like one of the standard floppy drives built to use them. As the LS-120 is an IDE device it mounts and installs just like a standard floppy.

According to Panasonic the way the LS-120 works is by using a laser to read servo tracks on the special high capacity diskettes which have been pre-laser etched during manufacture. When you put the diskette into the drive its optical sensor emits a laser beam to locate those servo tracks and uses that information to position the read/write head. The precision afforded by this laser positioning allows the drive to read 2490 data tracks per inch instead of the 135 tracks per inch discernible on conventional HD diskettes.

The LS-120 is currently being included in specific models of Compaq desktop computers but will be available for purchase as a separate unit in July or August for somewhere in the neighborhood of $225. The 120 Mb disks are expected to sell for about $25. Tech specs include a sustained data transfer rate of 565 K/second with an average seek time of 70 ms.

If you think this sounds like something you'd want contact Panasonic. —*Ross MacDonald*

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To Serve You

ROM reader and 2x CD-ROM recorder in a beige cabinet Just as with a PD drive disk data capacity here is about 650 MB—which amounts to about 74 minutes of audio if Pop stardom is what you have in mind The box includes all the necessary cables etc but no SCSI card

Installation and set up was as simple as with any other SCSI device so it should be up and running in less than half an hour if you've got any SCSI experience at all And you'd better get it right because where the device drivers are provided on a regular 3 5-inch floppy disk all the really useful utility software comes on a CD ROM which you might just need your 6020 to read (unless you've retained any original CD ROM drive you may have had and configured your system so it still operates) But that's where some of the major advancements have been achieved with this technology Windows 95 compatibility has been greatly improved so many of the idiosyncrasies and glitches experienced last year have been thankfully circumvented

Great improvements in how the software works have led to the all important ability to drag and drop when a simple quick backup or file transfer is the order of the day

For just about any CD ROM concept you have in mind Hewlett-Packard has bundled several packages onto its CD-ROM to help us all through the process Easy CD is the package that lets you transfer files to CD-ROM Easy CD Audio is a relatively straightforward package for recording your own audio Alchemy Personal is a sophisticated custom database creator that can be used on your self made CD-ROM or simply on your hard drive, and Magic Lantern is a viewing and editing utility for any Kodak Photo CD ROMs you may have (note Magic Lantern does *not* create Photo CDs)

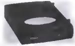
Though you load all these packages as a bundle into a new Window called HP SureStore they operate as separate applications and come with their own independent user help

Another new twist to Hewlett Packard's approach is making the SureStore 6020 available as either a SCSI or a parallel port interface device As expected the latter version's performance won't be as impressive as the former's

But *TCP* contributing editor Geof Wheelwright has been using the parallel version for several months now and *really* likes it He says he has experienced no bottlenecks in data transfer through the parallel port and finds that that interface makes CD R even more practical as a backup and storage device because it can be simply plugged into any computer—desktop or portable Another point that Wheelwright makes is that the resulting CD ROMs are a preferable medium because they can be slipped into high performance CD-ROM drives for even faster access to the data stored yet another advantage to consider

Removable disk

ezflyer 230 MB and syjet 1 5 GB



From SyQuest Technology Inc
Estimated street price $375 ezflyer (external only) parallel or SCSI II $40 each 230 MB disk cartridge $629 syJet external SCSI $569 syJet internal SCSI $659 syJet external parallel port. $198 each 1 5 GB cartridge $125 syJet SCSI parallel adapter cable ($50 when purchased with drive)

SyQuest is one of the names that immediately come to mind when you think of removable storage, and the ez drives constitute its entry level products Though examined last time around, this remains a current product so here's a recap

The 230 is available in either a SCSI II or parallel port version the latter being the configuration I received Where the parallel port was intended really only for printers or scanners or other peripherals sans celerity, the SCSI interface was built for speed Specs on the two versions reflect this a sustained data transfer rate of 1 25MB per second on the parallel version, but a possible 2 4MB per second from the SCSI

Throughput is limited to 25 MB per minute on my parallel version but can reach 60 MB per minute if you go with SCSI In empirical terms, it took about 30 minutes to backup 100 MB of compressed data through my parallel port. Of course and I can't emphasize this too much, you're going to have very personal results depending on your own hardware set up and your software configuration.

The drivers for the *ezflyer* 230 are provided on standard 3.5-inch floppies—one each for DOS/Windows Windows 95 and OS/2 and Windows NT, but, where the box tells ➤

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you that you get your first actual disk cartridge included free this is only partially true because the rest of your software bundle and documentation are written onto that cartridge.

Most salient in that software bundle is SyBack, SyQuest's own backup utility package. As expected, this lets you backup and compress and schedule automatic backups etc. And since capacity is limited to 230 MB, SyBack nicely accommodates multiple cartridge backups by politely asking for another cartridge after the current one's full. SyQuest, the next application, is a simple formatter. And, thrown in for good measure is Zip Zap—a data-base of U.S. Zip codes, area codes and time zones around the world—plus a game called Tnazzle.

Physical installation is as simple as plugging the ezflyer 230 into your parallel port using the cable provided (and they've considerately wired another parallel connector into the back of the machine so your ezflyer and your printer can both speak to the computer). It's neat, it's handy and it's small. And the performance to price ratio is hard to beat.

The same can be said of the syJet 1.5 GB cartridge drive—SyQuest's answer to today's need for greater capacity. This machine looks almost identical to the ezflyer and even comes with the same software bundle, but you know you're dealing with something else when you compare their relative cartridges, which are quite different in appearance and, of course, capacity.

Just as with the ezflyer, the machine itself can be positioned either horizontally or vertically with a couple of little LEDs strategically placed at the front to show you what's up when the thing is running regardless of which position you choose. A stable snap-on foot is now provided so you can use the drive in the vertical position without it wobbling all over the place.

Tech specs for the SCSI syJet 1.5 GB include an impressive minimum sustained data transfer rate of 3.7 MB per second with a maximum rate reaching about twice that—that means full-motion video without any skipped frames. There's also a 512KB cache built in to help keep all that data flowing uninterrupted.

And, following in what has all the earmarks of a trend, the syJet can be adapted to interface through the parallel port using a special optional cable, though performance will necessarily be reduced by about 50 percent. This adapter cable includes an extra outlet so you can simultaneously hook up your printer.

As promised by the technology, having a SyQuest ezflyer or syJet 1.5 GB is not unakin to having a second hard drive hooked up to your computer. Either of these machines backup, copy, save, load and run applications at a pace virtually indistinguishable from your regular hard drive. And of course since it virtually is another hard drive, you can use your favorite compression software to increase the capacity.

Zip 100 and Jaz 1 GB

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From Iomega Corporation
Estimated street price $299 Zip external (parallel or SCSI), $20 each 100 MB disk-cartridge $89 95 Zip Unleashed power pack (for ext only) $588 Jaz internal (parallel or SCSI) $699 Jaz external (parallel or SCSI) $170+ each 1 GB disk-cartridge (or $459 3-pack) $99 95 Jaz traveler (SCSI-parallel converter)

Iomega just happens to be the other name that springs to mind when thinking of removable storage largely due to the strength of its three very popular product lines—Jaz, Zip and Ditto Easy Jaz is the big guy a removable hard drive system with capacities up to 1 GB Ditto Easy is a tape system strictly for backups, while Zip, the product Iomega submitted for the first roundup is its modest 100 MB removable disk system and remains included here as a current and still very popular product.

The specifications for the SCSI version of the Zip I received give an optimal sustained data transfer rate of 1 4MB per second and a throughput of 60MB per minute As usual expect about a 50 percent drop for parallel

The Iomega Zip looks very much like the SyQuest ezflyer, but with some differences Again the Zip 100 can be run either vertically or horizontally but is more adept in the vertical than the ezflyer because the access door is a resistance free inward folding flap (identical to what you'll typically find on any 3 5-inch floppy drive) and you don t need to *shove* the disk cartridge into the machine—it slides in very nicely Thus you won t be fighting a hard sprung door or flipping the Zip 100 over when inserting or removing cartridges.

On the comparative converse though where SyQuest's cartridges are thick and solid and heavy the Zip 100 disks are far more physically akin to a regular 3 5-inch diskette because where the SyQuest cartridge virtually constitutes a removable hard drive, the Zip 100 is better categorized as a high speed floppy

The Zip 100 is a pleasant little machine to install and use Again we have all the software and documentation bundled onto the "free" cartridge that comes with the drive and Iomega recommends that you keep that cartridge uncorrupted for future installations The software bundle is called ZipTools and provides you with everything you ll need to backup move catalogue, secure share and transport all your stuff 100 MB at a time through an icon-based interface A very nice utility called Guest allows you to temporarily install drivers and software from a 3 5 inch floppy onto any computer that you just quickly want to inject with data from one of your Zip 100 disk cartridges

The Zip 100 is economical light and simple to use while the cartridges though of limited capacity are affordable enough to let you separately move or store multiple directories on individual disks as a practical alternative to backing up or copying the entire hard drive The addition of the new Zip Unleashed battery pack this year will also go a long way toward making this an even more popular product

Our newcomer to this survey though is the Jaz 1 GB cartridge drive which also comes as a SCSI or parallel port interface device The SCSI boasts an average 5 4 MB per sec data transfer rate aided by a 256KB cache You can expect an overall reduction of those numbers by about 30 percent for the parallel And as the name suggests the capacity of the pleasantly robust disk cartridges is 1 GB

Strangely enough no one at Iomega would define the software bundle because they said it's changing all the time However, you can at least expect to receive a disk of specialized Jaz tools for backing up cataloguing etc , and for now, something called AppMover that lets you shift your applications onto a Jaz disk in a configuration that will be usable from there

Like its SyQuest competitor, the Jaz drive is also very easy to set up and use The cartridge itself is quite different from the Zap in employing a rigid platter instead of the high-speed floppy technology The Jaz drive is very appealing, indeed for those who like the combination of speed flexibility and the gigabyte capacity

Travan tape

Colorado T4000s

From H-P Colorado Memory Systems Division
Estimated street price $575+ internal $700+ external $50 each (est) TR-4 Tape cartridge

This SCSI-only machine was included last time around but remains a very current and popular product

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Using the TRAVAN TR-4 tapes means the T4000s is capable of storing 4 GB of "native" (read uncompressed) data and, as you might guess, 8 GB of compressed data, which makes for an excellent capacity-to-cost ratio.

Installation, as usual, is mechanically simple but typically SCSI complex. The clear and simple installation guide for the T4000s is about 30 pages but, be warned, the manual for the bundled Colorado Backup software more than triples that. I should mention too that the latter is exceptionally comprehensive with lots of illustrations, but add the codicil that 28 of the book's 99 pages are devoted to interpreting *error* messages.

Conversely, much of the manual explains Colorado Backup software's sophistication in allowing for lots of options in terms of full, incremental and automatic (pre-scheduled) backups. The machine itself is designed to fit any standard 5.25-inch drive bay and comes with the necessary ribbon cable to the SCSI card included.

Technically, the T4000s boasts a very happy 514 KB per second data transfer rate which, for those who don't have their calcu

Backup software

Backup Exec for Windows 95
From: Seagate Software
Estimated street price: $125 (upgrade for Arcada and Seagate Backup for Windows 95 users: US$28)

If you're not happy with the backup software you're using now, or you're new to the backup game (tsk tsk) and you want something more sophisticated than what came with your newly purchased machine, Seagate's Backup Exec is certainly worth a look and definitely worth the price. In fact, it may be worth seeking out a machine that comes bundled with this package already if you haven't yet made your purchase.

The fact that many of the storage and backup machines examined in our survey come bundled with Seagate Backup or Backup Exec is testimony to the flexibility and reliability of this package, which automatically recognizes and configures whatever backup device you have connected to the computer and allows you to make a special emergency restore backup right after installation.

Emergency restore is particularly appealing because it lets you rebuild everything, including the operating system, in the event of a complete disk failure. That means you don't have to reinstall your Windows 95 and Backup Exec software before recovering your last data backup— as long as you created the emergency restore backup in the first place.

Another sophisticated feature is the enhanced device support so you can use Backup Exec for Windows 95 with virtually all SCSI, parallel, floppy and IDE interfaces. Also specified by Seagate is support for Jaz, Zip, LS-120, optical, SyQuest and PowerDrive devices.

As with just about any other capable backup package, the usual features are here too—things like file specification, the ability to find individual or groups of files, the ability to create an automatic backup routine, etc. That latter feature includes a direct tie-in to Windows 95's System Agent so you can make use of the built-in scheduler and calendar.

Though all of this might sound complicated (and it probably is), Seagate has cottoned on to the recent trend toward "Wizards" so the inexperienced can be walked through the backup and restore process one screen at a time. Once you feel comfortable, however, there's also the facility for getting it all going manually by pressing a single button. As well, to help you get familiar, there's a 78-page, easy-to-follow manual and lots of on-line help.

System requirements for this package: Windows 95, 8 Mb RAM and 10 Mb hard drive space. Very economical indeed. —*Ross MacDonald*

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lators handy adds up to optimum backup speeds of 31 MB per minute for native data and double that rate when the optional two-to-one compression is applied. Once operating smoothly on a Pentium based machine it doesn't take much longer than half an hour to completely backup a 1 GB hard drive.

Like so many SCSI systems, the H-P T4000s demands substantial fiddling to get going comfortably. Once done, however, you ought to be able to backup and access your data without much further thought.

Backpack 8000t

From MicroSolutions

Estimated street price: $649; $50 each TR-4 tape cartridge

This is another TR-4 tape backup system, this time, however, configured for use through the parallel port. This slows things down a bit compared to SCSI, but with an average data transfer rate of about 450KB per second (about 30 percent slower than SCSI) and the ability to backup compressed data at up to 30 MB per minute (that's about half the SCSI rate), the 8000t is an impressive little speedster in the parallel port interface race.

Still, as outlined in the introduction, there's much to be said for the parallel interface in terms of convenience and ease of use, much enhanced by the price and portable design of this drive, makes it a very desirable machine. As well, the Backpack 8000t has both cable-in and cable-out parallel jacks on the back so you can simultaneously connect your printer and the tape drive to the computer in daisy-chain fashion.

Specifically addressing the portability issue, MicroSolutions has considerately made an optional Backpack Survival Kit available for about $75 that includes a fitted carrying case, a TR-4 tape cartridge and a special tape head cleaning cartridge. Though not torture tested (at least by me), this drive gives the impression of having the robustness of construction necessary for the anticipated pounding around.

The 8000t comes bundled with Seagate's Backup Software package for Windows, Windows 95 and DOS. A very nice machine.

TapeStor 8000

From Seagate Technology

Estimated street price: $479 (external), $389 (internal); $50 each TR-4 tape cartridge

Yet another 8 GB entry in the TRAVAN TR-4 tape drive category, this particular machine can be had in external or internal and SCSI or IDE interface versions. The one I received was an internal IDE (contact Seagate for prices and specifications on other versions).

The nice thing about the IDE interface—the same interface commonly used by hard drives—is that you'll already have an IDE interface somewhere in your computer so you can dodge the need to purchase a SCSI card. However, the IDE interface performance varies in allowing an average data transfer rate equal to that of the MicroSolutions parallel interface—450 KB per second—but facilitating a backup speed more akin to Hewlett Packard's SCSI rate of 30 MB per minute (native) and 60 MB per minute compressed.

A nice little bonus here is that the TapeStor 8000 comes with Seagate's Backup Exec software package, a slightly enhanced version of the Seagate Backup package found bundled with many of the other machines looked at here.

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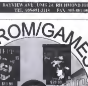

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BY BOD LAMIRAND

Picture This Home! Kitchen
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Home design/renovation software doesn't have a reputation for being easy to use or producing very realistic renderings. Home design programs are usually dumbed down versions of their professional CADD (computer-aided design and drafting) cousins, built to be inexpensive and run on less powerful computers than professionals use.

Thus the software has usually been awkward to use and unlikely to produce the kind of images that you would expect—especially if you judge by looking at the boxes of these programs. Until now that is.

AutoDesk, the makers of AutoCAD, have come out with a new line of home design/decorating/renovation software that is both aesthetic and as close to intuitive as it gets. Picture This Home Kitchen is one of the members of this family and it is good.

It's a great program for a number of reasons, but first, here is what it does. You pick a kitchen that looks like yours and then manipulate it to the correct specifications. Or, like me, you find your kitchen is unique so you begin with a box and start placing walls, cabinets, counters and all the other things that are in your kitchen onto a floor plan.

When you are done, which may take anywhere from a couple of hours to many hours depending on your kitchen, your abilities, your computer's power and your desire to be precise, you start the fun part. The fun part is decorating.

To run this program the recommended system is a Pentium based PC with 16 MB of RAM and a video display capable of high color (65,000 shades). Other requirements include a sound card, printer and CD-ROM drive. The muscle and the high resolution color give you the power to get things down quickly and the ability to produce realistic images.

This is a Window 95- or NT-based program

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and will not run on Windows 3.x. Most home renovation programs are 16-bit Win 3.x programs that run on 95 but do not take advantage of Windows 95's 32-bit operating system.

This program is smart. In Picture This Home! Kitchen, you place a cabinet beside another cabinet and they click together. This is like snap-to-grid and snap-to-object combined with snap-to-whatever seems likely to be right. I don't know how it works, nor do I much care, but it simplifies doing the floor plans. The software knows that cabinets and counters are usually in alignment with each other and just does it.

This is the kind of thing that makes doing the grunt work bearable, and the kind of thing you would expect from AutoDesk.

Once you have the kitchen laid out, you can do a walk through or take an aerial view and see how it looks. The 3D views are impressive but the colors are all wrong because you haven't yet decorated. At this point it is a good idea to link together items that will have the same color.

For example, all the cabinets will likely be the same. Linking them now will mean that when you want to select a particular cabinet color or design, and apply it, one click will change them all.

There are many colors but there are a number of patterns too, and borders, and counters that are marble or stone or laminate or lots of other things. This is where the importance of a 65,000-color display becomes apparent. This is also where the benefits of a powerful computer can be seen, for each change means a short wait while the scene is rendered anew.

Those are the basics of the program but there is a lot more. Because this is a CD-based program, there is enough storage to include videos. These videos explain various features and procedures. The program doesn't need a manual because of the excellent help and because the software is intuitive.

Knocking out a wall, adding a window, changing the width of a cabinet, changing the floor color, or wallpaper pattern are relatively easy. Save the designs you like and later compare the differences between your choices and those of your spouse!

Also included are other features. Budget is a program that will give you an approximation of the cost of all the items that you have installed (or just some of them). Shop is a catalogue of brand name products, such as refrigerators, stoves, sinks, floorings, wallpaper, windows, etc., from well known manufacturers. The database includes photos and approximate prices and is searchable by various criteria. Contact information is also given. Included in the box is a coupon book with savings and even a few phone numbers to receive free catalogues from some renovation product companies.

The interface and glossy look of this program are the primary reasons why the whole package has the feel of something well designed and useful. There are a number of other nifty features but the main point is that we finally have a home design/decorating program that is a pleasure to use.

If the other programs in this series are on par with this one, and there is no reason to believe they would be otherwise, it is likely that you might want to check out Picture This Home! Bath, Landscape and others. ❑

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Speech recognition dream comes true–slowly

VoiceType 3.0 for Windows 95 excels at navigation, stumbles at dictation

BY ROD LAMIRAND

IBM VoiceType 3.0 for Windows 95
From IBM
Estimated street price $1,000

BEGIN DICTATION. "The words that you are reading have never been typed into a computer. As you read this I am simply talking to my Pentium PC. In a moment, I am going to do a fiddle test." STOP DICTATION. I mean, I am going to do a *lit tle* test, not a *fiddle* test, but first a little background.

The dream of speech recognition is largely unfulfilled. It is amazingly difficult to convert spoken language into written text. Having said that, there have been great strides in this area in the last few years to the point where the technology can be quite useful—under certain conditions.

An example: right now, faster than I can do so with the mouse, I can say "Start, Programs, Microsoft Word, Begin Dictation" and I will be in the word processor and ready to start speaking. That is navigation and it is quite good. If I were unable to use my hands for any reason this would be even more useful. This application of the technology is impressive and likely to become widely used in certain environments.

However, when we turn to the other side of the voice recognition coin, there are greater difficulties. Whereas there are a relatively small number of navigational commands, there are tens of thousands of words that the dictation program must recognize. Worse, words that are spoken naturally run together. If the computer must also analyze where words start and stop as well as which words they are, the process becomes more than today's desktops can handle.

It is for this reason that the program must be spoken to discretely. That is, with * a * space * between * every * word. This is not as easy as it seems and takes some practice.

VoiceType 3.0 for Windows 95 is the Windows 95 version of IBM's high-end voice recognition program for businesses. There are also products for OS/2 and Windows 3.x. The product comes with a microphone and head set and a couple of jack adapters in case your sound card is not the one expected.

The software requires some beefy hard

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ware starting with a minimum Pentium 90 with a 256KB Level-2 cache and 16 MB RAM or better (my test machine was a 200 MMX Pentium with 512KB Level 2 cache and 32 MB EDO RAM, I wouldn't buy the product without a Pentium 120!) A 100 percent Sound Blaster-compatible sound card is needed along with 30 MB of disk space. The program comes on a CD ROM with an additional disc containing video tutorials.

VoiceType does not require enrollment the process of teaching the computer (and yourself) your pronunciation, but it is an option and will improve both navigation and dictation. For the tests in this review I spent an hour enrolling for dictation but no time at all enrolling for navigation. The navigation worked so well I never thought it necessary and the dictation was so onerous that one hour was all I could manage. Could * you * spend * more * than * an * hour * talking * like * this?

Here are some features of the program. VoiceType is written to work with certain word processors, namely the ones in Office 95, SmartSuite 95 and Perfect Office 3.0. If you have another word processor, such as Office 97, you must either use the specialized, and quite good WordPad that comes with the program or the Quick Dictation window that will take your work and when you are finished dump it into the open word processor.

As you would expect VoiceType allows for templates and macros. Using templates is especially useful where a business or institution routinely records the same information. Also in this scenario the program's accuracy would be practically 100 percent because of the small number of words and the fact that they are repeated and expected.

Macros are also a very useful tool. Let's say that you regularly use the same sentence phrase or even paragraph. By recording a macro for that text you need only say a certain phrase to insert that wording. VoiceType is also customizable for different professions. Journalists hospital workers those that work in law firms and others can increase their accuracy and productivity by purchasing expanded and specialized vocabularies.

Here is the test that I mentioned earlier. As quickly as I can I am going to type a sentence and compare it to the speed it takes me to say the sentence. Here is the sentence "The quick brown fox jumped over the lazy dog." Typing 11 seconds.

Now back to the voice recognition "The creek Brown fox. Over the lazy dock." Dictation six seconds.

Okay that was a little too quick. Once again "the quick Brown box jumped over the lazy dock." Time eight seconds still too fast.

Last try "the quick Brown box jumped over the lazy." STOP DICTATION

That was 10 seconds and as you can see the program thought the last word "dog" was "dot" and thus that is where the sentence ends.

Here is another test of voice recognition. Without worrying about speed I will dictate a line from the theme song of one of my favorite old television shows, and whatever is recorded I will leave for your observation.

BEGIN DICTATION "This is a story about a man named dead, a poor manager barely kept his family said. Then one day he was shooting at some food, when up through the ground came a bubbling crude. Will that is Texas T, black gold." STOP DICTATION

As you can see there is considerable success but some errors. The software does not know "Jed" so I should have spelled this word (BEGIN SPELL—Jay Eee Dee), "mountaineer" is likewise a tough word. The choice of "said" rather than "fed" shouldn't be quite so hard but after right clicking I saw the word "fed" was the program's third most likely selection. The transcription of "Will" for "Oil" is understandable if you say the words to yourself and listen. Four errors not bad, not great.

Rumor has it that we are about to see continuous speech programs at the consumer level in the next year. This is possible—a year in this industry is a long time. Whether that is true or not remains to be seen but it is sure that this type of application will only get better. As a marvel of leading-edge technology this software is impressive. As a work tool for specialized customers, this program is filling an important niche market. As a general home user small business program this is not yet the tool it will one day be. Perhaps by the year 2001 we will have truly useful continuous speech voice recognition.

BEGIN DICTATION Open the pod ba doors HAL. STOP DICTATION. ❑

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Weaving your own Web site: Part XXI

Netscape Layers

BY KEITH SCHENGILI ROBERTS

With the release of the initial "pre-release" version of Netscape Navigator 4 0 a few months ago, Netscape took the opportunity to introduce yet another set of hypertext markup language (HTML) tags These "layer" tags are designed to provide precisely positioned, overlapping layers on a Web page

These layers can be transparent or solid and can be "stacked" in a particular order within a Web page The idea is that with a little JavaScript wizardry you can move around and display different layers to the user. Ideally, a Web user viewing a Web page using the new layer tags should be able to peel away and view the content on the different layers, kind of like a hypertext onion

This needs a bit of explaining, as the concept is a new one even for the desktop publishing community, from which many new HTML concepts have been derived. Probably the closest concept already known to experienced HTML authors is the idea of having hyperlinks contained within a page linked to a kind of Rolodex that brings new "cards" into view when you click a link

In a typical Web page that contains local links you have a larger-than-usual Web page that takes the viewer to a place further down on the same page they are viewing. This arrangement is handy if you want to limit the number of links to other Web pages and to keep the total number of Web pages on your site down to a manageable level

Layers add this Rolodex function, so that when a user clicks on a link it brings another page "forward" to the display In this way you can have many layers of individual pages contained within what is actually a single Web page In effect you are flipping through the Web equivalent of a Rolodex, all while staying within the single Web page

To explain Netscape's Layer tags further, now imagine that this imaginary Rolodex holds cards that are transparent in some areas so you can see the card immediately behind it—or perhaps see several cards immediately behind it through this transparent window Now imagine that in addition to flipping pages you can have part of a card appear in front of another card So if a small creature suddenly ran across your imaginary Rolodex it would seem to appear and reappear as it scurried between the layers

By now you have a better idea of how layers work. Essentially they can behave like a standard Rolodex bringing various cards into view—and sometimes multiple parts of different cards at once—or they can be used for simple animation sequences

The HTML code for layers is quite simple the **<LAYER>** container tag begins and ends a layer on a Web page The **<LAYER>** and **</LAYER>** tags contains all of the content that appears in the layer—which is probably best thought of in terms of separate Web pages. You can have multiple layers by having multiple **<LAYER>** and **</LAYER>** tags enclosing separate regions of content within a single Web page For example, the following code displays two separate layers.

```
<LAYER>
This is one layer of material
</LAYER>

<LAYER>
This is another layer of material
</LAYER>
```

Okay it isn't really this easy If you try to view the above code through Netscape, you won't see much of anything. To make your layers functional you have to provide a number of other display and ordering characteristics to the **<LAYERS>** tag

One of the parameters you have to add is the **NAME** attribute It works much like the

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NAME attribute within a framed Web page. It specifies the name to be associated with a layer. This is important later, as the JavaScript program uses this attribute to know which layer to manipulate and display.

The **LEFT** and **TOP** attributes specify the horizontal and vertical positions at which a layer is to appear as a pixel value. With these attributes it is also possible to position one layer adjacent to another.

The **WIDTH** attribute determines the horizontal width of the layer in pixels. More correctly, it sets the maximum value for text within a layer before it is "wrapped" to the next line. Things that cannot be wrapped, such as images, extend beyond the margin. Make sure the width is large enough for both your text and any multimedia or images you may wish to display.

VISIBILITY sets whether a layer is visible or not. **VISIBILITY** has three values: **SHOW**, **HIDE** and **INHERIT**. The first two are self-explanatory and **INHERIT** means that a layer derives its visibility properties from the parent.

There are more attributes for the <LAYER> set of tags, but we have enough to build a simple layered Web page. In this example we will have a number of stacked layers, all having the same placement on the Web page. Here is the sample code for our layers examples.

```
    <LAYER   NAME="Croequo0"   LEFT=75
TOP=175 WIDTH=400 >
    Mallards on sale! Drake scott!
    <P>
    <IMG SRC="mallard.gif">
    </LAYER>

    <LAYER   NAME="Croequo1"   LEFT=75
TOP=175 WIDTH=400 VISIBILITY="HIDE">
    Barrel cactus for your prickly needs!
    <P>
    <IMG SRC="barrel.gif">
    </LAYER>

    <LAYER   NAME="Croequo2"   LEFT=75
TOP=175 WIDTH=400 VISIBILITY="HIDE">
    Yes, we sell funky frogs here!
    <P>
    <IMG SRC="bullfrog.gif">
    </LAYER>

    <LAYER   NAME="Croequo3"   LEFT=75
TOP=175 WIDTH=400 VISIBILITY="HIDE">
    We got fish de-lish here! Ooops! Don't let
them bite back!
    <P>
    <IMG SRC="shark.gif">
    </LAYER>
```

Now we have to build a JavaScript program that will allow us to shuffle the placement of the cards in the layer.

For each layer in an HTML page, there is

Continued on page 113

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Electronic freedom-fighting sites

BY KEITH SCHENGILI ROBERTS

David Jones and Jeffrey Shallit are the founders of Electronic Frontier Canada (EFC), an organization that was founded to ensure the principles embodied in the Canadian Charter of Rights and Freedoms remain protected as new computing, communications and information technologies are introduced into Canadian society. Being computer scientists, they began counting their list of Top 10 Web sites from zero:

0 **Electronic Frontier Canada** • This site is run by Canada's premier organization dedicated to protecting freedom of expression and the right to privacy in cyberspace. Are you a member yet?
Web site: http://www.efc.ca/

1 **Electronic Frontier Foundation (EFF)** • This group is the largest, oldest and best-funded organization devoted to civil liberties in cyberspace. It is host to huge archives, but is devoted to the American perspective.
Web site: http://www.eff.org/

2 **Electronic Privacy Information Center (EPIC)** • This is another American public interest group devoted to the preservation of privacy in new electronic technologies.
Web site: http://cpsr.org/cpsr/privacy/epic/epic.html

3 **The Anonymizer** • Through this site you can surf the Web without leaving a trail of digital footprints.
Web site: http://www.anonymizer.com/

4 **CensorScan** • A project of Canadian journalist Donna Laframboise, the CensorScan site keeps you informed on what those busybodies at Canada Customs are up to.
Web site: http://www.razberry.com/raz/censor/top.htm

5 **Chronicle of Freedom of Expression in Canada** • This site tells the sad history of Canadian censorship. It is put together by the Periodical Writers Association of Canada and the Book and Periodical Council, both based in Toronto.
Web site: http://www.efc.ca/pages/chronicle/

6 **LoGIC – the Legal Group for the Internet in Canada** • A group of Canadian lawyers interested in the Internet and its legal implications operates this site. It is also home to the Digital Doomsday Clock.
Web site: http://www.catalaw.com/logic/

7 **American Civil Liberties Union Cyber Liberties" Page** • The ACLU is the only organization in the world with deep enough pockets to be able to fight effectively against government censorship of the Net. Read the details of the U.S. Supreme Court battle that began March 19 and will have lasting impact around the world.
Web site: http://www.aclu.org/issues/cyber/

8 **Declan McCullagh's Fight**

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Censorship Mailing List Archive • It ain't pretty but it's the most comprehensive and up-to-date archive of what's happening on the front lines in the fight to protect freedom of expression in cyberspace

Web site http://www.eff.org/~declan/fc/
FTP site ftp://varlon.mit.edu/pub/f-c/

9 **Electronic Frontiers Australia (EFA)** • This is EFC's sister organization down under Since Australia's size, heritage, and laws are similar to Canada's EFA's successes and failures in battling online censorship documented at this site serve as valuable lessons for Canadians.

Web site http://www.efa.org.au/

10. **Student Association for Freedom of Expression (SAFE) Censor Bait page** • These MIT students have gathered together a collection of links at this site to all kinds of controversial stuff on the Net that many university administrators don't want students to see. Do you dare look?

Web site http://www.mit.edu:8001/activities/safe/home.html

Contact: Electronic Frontier Canada,
Email David Jones, djones@efc.ca
and Jeffrey Shallit, shallit@efc.ca

Keith Schengili-Roberts is *The Computer Paper's* WebWatch editor He welcomes any comments, suggestions and Web related news you may have. You can email him at kschengi@interlog.com

The original online shopping centre comes to the Web • CompuServe's Electronic Mall the world's first online shopping centre is now open to traffic from the entire World Wide Web

Launched in 1984 the Electronic Mall was formerly open only to CompuServe members It is now open to all, and offers enhanced multimedia access to the wares of more than 85 merchants who call the Electronic Mall "home."

Taking content to the Web is now an important part of CompuServe's strategy for the Electronic Mall and related ventures. "In the retail world store location is key" said Gary Yeauger CompuServe's senior manager for merchandising "What better location could we have in cyberspace than the World Wide Web?" By opening up the Mall to the Web everybody with a Web browser can see how CompuServe does things. CompuServe also hopes that once people get a taste of CompuServe on the Web, they'll click on the navigational button that gives them a trial membership of the online service.—*KS-R*

Contact: CompuServe's Electronic Mall
Web site http://mall.compuserve.com/

InContext FlashSite wins award • *PC Magazine* recently gave InContext's FlashSite off-line browser the Editor's Choice Award for its powerful features and user-friendly interface, which combine to make it "an extremely capable and easy to-use off line tool"

Based on technology developed for the InContext WebAnalyzer site management tool, FlashSite enables Internet surfers to browse Web sites without having to wait for downloads and organizes the contents for easy access Users can explore Web sites off line using a browser or read site summaries in hierarchical list or link map views A built-in scheduler automates and schedules downloads and provides regular updates of favorite sites or information. This material can then be organized in an easy to-use personal filing cabinet that can be browsed.

Robert Arn, president and chief executive officer of the Toronto-based InContext, says the Editor's Choice Award is recognition of his company's continuing "mission to deliver superior functionality and value at every level of the Web information management spectrum. This award shows that we've made

Continued on page **118**

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The freaky art of CD-ROM

The Residents' create intriguing sideshow world

BY ROSS MACDONALD

The Residents
Freak Show
From The Voyager Company
Estimated street price $54.95

This is a unique disc—entirely different from any other I've seen and to those whose taste might run in like direction—quite probably a genuine work of art. I've had it for quite some time now—it's been in the Voyager catalogue for a couple of years, but remains currently available and well deserves wider appreciation.

The central theme is a carnival freak show in which a bizarre cast of seven characters is presented. Each, like all of us I suppose, has his/her (its?) own peculiar story. Harry the Head is a disembodied head that lives in a jar of formaldehyde. Herman the Human Mole lives in a trailer full of dirt. Wanda the Worm Woman is an overly obese, worm slurping ex nun, then there's Tex the Barker who is host of the show, Mickey the Mumbling Midget, Jelly Jack the Boneless Boy who lives as a blob in a glass box, and rounding out these dramatis personae, Bouncing Benny the Bump, an idiot with a giant tumor growing from his chest.

Tex introduces us to each character from our initial vantage point as a rubber-necking patron. When introduced, each freak comes onto a little stage and does its act.

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But the real point of the disc—if there is one—only comes out when you sneak behind the stage into the No Admittance area. This is where you can enter the trailers where these freakish figments live However it's necessary to make three attempts to get back there as Tex warns you off.

Eventually you'll find yourself in the gloomy, hidden world of the characters actual lives. You can enter each of their trailers and learn their individual stories by hunting for hot spots that reveal telling information Harry the Head's story, for example, is told by an MTV style video that plays on his TV (He had been a mean bully but, paradoxically with a talent for creating great paintings on tender topics. His wish was that his head be preserved in formaldehyde after his death so that he might live forever... and he got his wish!)

I actually know all this about Harry from the little booklet of biographies that comes with the disc I doubt if anyone would ever be able to figure out all the intricacies and interactions between characters without it. Even The Residents themselves are explained by the same combination of animation and biography (though we among the heppest cats already know who they are)

The Residents' trademark is an eyeball wearing a Top Hat and they might best be recognized among mainstream audiences for their idiosyncratic contributions to Pee Wee's Playhouse—long demolished due to un-Pee Wee like behavior with Pee Wee's pee pee But The Residents been around for about 25 years now, making a somewhat underground living through live performances, video recordings and now CD-ROM—all of which share the characteristic kernel of performance art

Sneaking into The Residents' tent at the back of the carnival we find a gallery of photos, audio and video clips to give the uninitiated some idea of where this disc is coming from.

Curiously out of place yet curiously belonging, is a photo and biography gallery of the real side-show freaks who inspired this project. Presented a la Ripley's Believe It Or Not you find the jukebox-style directory inside the door labeled Pickled Punks. You punch a letter and number to browse the directory of some of the real people who are counterparts to those in The Residents Freak Show

As there are virtually no instructions on how to make your way through this extraterrestrial world, you'll be immersed for many hours as you try to discover everything that can possibly be.

Typical of all The Residents' work, this disc is quite literally a work of art—performance art if you like And it could quite obviously never have been accomplished in any medium other than CD-ROM because of the combination of sound, video, animation and audience interactivity that's required to achieve the unique effect.

Voyager is a company with quite a few unique and intriguing titles in their catalogue and their Residents Freak Show is a must for anyone with a sensibility that reaches any distance at all beyond standard game reference and edutainment type-discs ❑

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BY JEAN ALLEN IKESON

Corel R.E.A.D.
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Corel R.E.A.D. developed by Toronto's I Hoffman + Associates is a reading/phonics program designed for teens, adults or English as a Second-Language students. The acronym in the name stands for "Reading Educational Auditive Development," but don't let that put you off. While it is an expensive proposition for individuals, schools and tutoring centres should benefit using it as a one-on-one interactive learning tool.

Lessons and exercises are woven through a game format. Users play the role of a crime writer in a fictional town called Melbury, looking for clues imbedded in 20 levels of "play." The emphasis is on building a knowledge of phonics so words may be decoded for reading skills. There is practice in building and blending sounds, listening to and reading sounds, spelling, and analyzing and synthesizing sound patterns.

An optional 10-minute introduction carefully explains how to use the program and is suitable even for those who are unfamiliar with computers. Each "game" or lesson is also carefully explained. The instructions suggest players use the program 20 to 30 minutes a day, rather than a couple of hours per session. This format would suit ESL classes slotted into a shorter time period.

A journal for sounds and combinations is also advised. Activities may be replayed at any time and players can explore, but cannot progress to the next lesson until the current one is completed. Completion is measured by a pass percentage, which may be set from 65 percent to 100 percent by the instructor. Answers are identified as "correct" or "incorrect." The user can try again but no explanation of why the answer is wrong is made.

While the instructions and lessons are set for teens or older, unfortunately the individual games look like something imported from older DOS phonics or math educational products. You must shoot alien ships with designated sounds out of the sky or rearrange envelopes with sounds to match the appropriate mail boxes while the aliens or letters fall slowly from the sky.

Sound familiar? They are called "drill and kill" exercises. However, they are still effective in linking decoding or matching of sounds to speed. Without speed, learning readers soon get discouraged because it just takes too long to read a passage. But I wonder how a 40-year old laundry worker who is functionally illiterate will feel about shooting aliens?

The best part of the program is the careful, detailed lessons filled with the repetition necessary to learn and retain the 44 sounds that make up the English language. Solving the Melbury mystery ties the program parts together and provides a goal for finishing the lessons and exercises.

R.E.A.D. comes on CD-ROM for both Windows 3.1/Win 95 or Macintosh. It can be purchased in stores, directly from I Hoffman + Associates or through Corel, which recently sold its line of home and "edutainment" titles—including R.E.A.D.—to Hoffman. ❑

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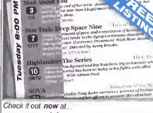

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An excellent space CD-ROM

FlagTower's newest title examines history of humans—and dogs—in space

BY BOSS MACDONALD

The Space Race
From FlagTower Multimedia
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Inveterate readers of my CD-ROM reviews will already know my history of skepticism regarding what most publishers try to pawn off as multimedia products and the concomitant proportional raves I have for those who actually do it right Among my favorite publishers have been Dorling Kindersley and of late FlagTower, from whom I have so far looked at The Unexplained and The History of Medicine

Well here's a third The Space Race which is executed with the same high production values and flair the company brought to its two earlier titles As you might guess from the name, The Space Race covers the history of competition between, initially Russia and the United States to gain political and strategic advantages over one another in the realm of the great beyond In more recent times the French Indians Chinese and several others have stepped into the picture so the whole issue has become rather complex not to mention moot

Which is where FlagTower's The Space Race makes for such a handy reference In simplified but not oversimplified terms the political, economic and scientific implications of both early and modern space exploration are presented and explained from within the context of the Cold War the state of scientific research at given points in time and even the personalities involved

Handily enough this history can be examined in linear fashion from beginning to end by hitting a "play all" button or specific categories can be addressed from the main menu Of course getting through the entire contents of the disk—27 minutes of video 960 photographs and 120 minutes of audio—could be rather time consuming, so they've considerately built in the option of picking up from where you left off whenever the disc is booted

Each of the seven categories on the main menu are broken down into 10 or 12 sub-categories which are essentially constituted of one minute video/photo vignettes As the narration in each vignette progresses hot spots appear at the bottom of the screen from which you can divert to specific details about a person a machine a mission, etc, currently being addressed.

That for example is how I found out that Laika the dog—the first living thing sent into space by the Russians in Sputnik II in 1957—died out there because they didn't bring her back down before her air ran out after seven days Those meanies!

Though not particularly interested in the topic I found The Space Race kept me wanting to learn more largely because of its crisp clean high-quality presentation and its carefully crafted structure This title most definitely belongs among the CD-ROMs of any one who wishes to maintain a comprehensive reference and entertainment library ❑

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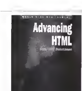

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A useful resource for online designers

BY KEITH SCHENGILI-ROBERTS

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Softcover, 264 pages, 1997
Price: $42.95

There are plenty of books out there on the hypertext markup language (HTML), but very few of them can be considered definitive texts on the subject. Not exactly a book, but not exactly a magazine either, the *World Wide Web Journal* is a collection of articles on HTML published by O'Reilly on behalf of the World Wide Web Consortium (W3C).

W3C is the recognized standards body for the Web, and it sets the official standard for HTML. It is chartered to help members understand the forces behind these developments and to lead the way to further innovation. If you are serious about writing pages for the Web, a copy of the *World Wide Web Journal* would make a good addition to your bookshelf.

This issue deals with the latest HTML 3.2 and Cascading Style Sheet (CSS) specifications. The former was officially implemented by the W3C in January. As member organizations of W3C, both Microsoft and Netscape are expected to implement the group's standards within their Web browsers (Internet Explorer and Netscape Navigator respectively). One of the most important changes to HTML is covered here: the CSS specification. CSS provides the Web page designer with more direct control over such things as colors, white space, multi-column layouts, fonts, and much more. It is not one of the easiest aspects of HTML to understand, but if you are interested in its nitty-gritty aspects—down to the browser level of how it is supposed to interpret a tag, then look no further.

Along with the HTML 3.2 specification, this issue of the *Journal* features articles on the latest multimedia standards plus an overview on GIF animation, Java, a look at how JavaScript can customize HTML to be more dynamic, Web accessibility, usability engineering and multimedia design. There are also some interesting looks behind the scenes at the members of the HTML editorial review board. One interview in particular—with the man responsible for defining a new graphic standard for the Web—shows just how dynamic and bull-headed some of the people at the W3C really are.

The *Journal* does have its flaws: each page has two columns of text, which would be fine if the book had the dimensions of a full magazine, but it doesn't. This makes the text harder to read than it has to be. While many of the articles in the *Journal* are original to the publication, others are obviously from the Web, and in a few cases (especially the one item about different graphic formats) one suspects that the Web page would do a better job of describing things.

However, the *World Wide Web Journal* is a good source for information on HTML and related standards directly from the people who set them. Published every quarter, the *Journal* provides timely, in-depth coverage of W3C's activities as well as technical, academic and controversial papers from around the world. It's worth taking a look at. ❑

Rating
Information content: ***
Readability: **1/2
Intended for: Intermediate/Advanced
Overall Rating: ***

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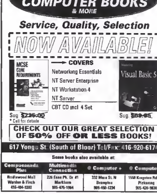

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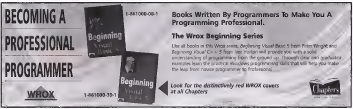

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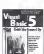

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Great Books Are Just The Beginning

Demystifying digital photography

Primer covers technical, artistic aspects of digital cameras

BY KEITH SCHENGILI-ROBERTS

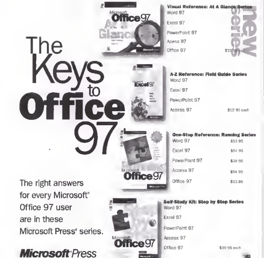
Digital Camera Companion: Everything You Need to Know to Take Great Digital Photos
Authors: Ben Sawyer and Ron Pronk
Publisher: Coriolis Group
Price: $41.99 (includes CD-ROM)
ISBN: 1-57610-097-8
Softcover: 372 pages, 1997

As the hardware becomes cheaper and more widely available, interest in digital photography is taking off. Digital cameras capture photographic images directly onto a computer memory chip, which can then be downloaded to a computer, bypassing the normal process of buying film and then having it developed before being able to see the results. *Digital Camera Companion* is a good primer for those interested in learning more about digital photography, and how to get the most out of it.

This is one of the first books aimed at the general reader who is interested in learning more about digital photography. There are scattered articles on the subject to be found in various photography and computer magazines, but these publications fail to cover both the artistic and the technical aspects successfully. This reviewer has even seen books claiming to be about "digital photography" dealing primarily with scanning processed film pictures on computer desktop scanning units. This book manages to bring the digital camera into the spotlight as a real photographic tool, detailing what you should look for in a digital camera, how to get the best pictures and what you can do with them.

For those interested in buying a camera, they should definitely take a peek at this book first. It lists the major pros and cons of digital photography as it stands today, what features to look for when choosing a camera and the extra computer hardware you might want to consider acquiring, such as backup data devices for storing all your digital images. An appendix of the book is devoted to the various manufacturers that make digital cameras, and what you can expect to pay for a camera with the features you want.

Digital Camera Companion has plenty of good suggestions on how to get the most out of your equipment. The simple but useful tips on how, when and where to shoot your pictures are a good guide for those digital photographers long on computer ability but short on artistic aptitude. There are step-by-step project instructions for non-photog-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raphers to help them acquire better techniques for shooting in any environment. The authors point out that while you won't always get the picture you intended, digital photography does make it is easier—especially if you use any of the editing tools provided in the CD-ROM that comes with the book.

The disc that accompanies the book contains sample imaging software like Metatools' GOO and Adobe's PhotoDeluxe Graphic utilities for both Mac and IBM computers, Web publishing tools plus email programs designed to send your electronic photos to your friends and associates. The book teaches the user how to create photo collages, make fonts from photographs, design 3D texture maps, and create virtual walk throughs for Web sites.

While digital cameras may not be up to the same image quality as a regular "analog" film print, they have their uses. The book also takes a look at professions that can benefit from the use of a digital camera, with a special emphasis on the World Wide Web. Create your own collection of stock footage and textures for making visually stunning Web pages, or use the camera to create sophisticated animations.

This will not be the last book on digital photography, and the subject matter will date itself quickly, but at the moment the *Digital Camera Companion* is easily one of the best books to be found on the subject of digital photography. If you have a digital camera or are considering acquiring one soon, it may well be worth your while to invest in this book. ❑

Rating
Information content: ****
Readability: ****
Intended for: Beginner
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Weaving your own Web site

Continued from page **101**

an equivalent JavaScript layer object. This essentially means that each layer is recognized individually within a program and has a number of inherent properties, which can be manipulated by the JavaScript code

The only JavaScript layers property we will manipulate is the visibility property (not to be confused with the **VISIBILITY HTML** attribute) Here's what the code looks like

```
<SCRIPT>
function hideAllCroequoLayers() {
document.layers["Croequo0"] visibility = "hide",
document.layers["Croequo1"] visibility = "hide";
document.layers["Croequo2"] visibility = "hide",
document.layers["Croequo3"] visibility = "hide",
}

// the following makes a single layer visible
function changeCroequo(n) {
  hideAllCroequoLayers()
  document.layers["Croequo" + n} visibility = inherit",
}
</SCRIPT>
```

This code makes the initial layer visible on the Web page and hides the rest until called for

Now we need something to trigger the visibility of each page This can be accomplished with a Java applet plugin or a form In this case we will use a simple selection form so that users can choose which layer will be visible The following code (which also makes up its own layer) does the trick.

```
<LAYER NAME="formlayer" LEFT=500 TOP=150>

<P>
Make a selection

<FORM NAME=Croequo>

<SELECT NAME=catalog onChange="changeCroequo(this selectedIndex) return false >
<OPTION>Ducks
<OPTION>Cactus
<OPTION>Frogs
<OPTION>Fish
</SELECT>
</FORM>
</LAYER>
```

The line of JavaScript code added to the <SELECT> tag triggers the rest of the JavaScript program on the Web page to switch the visibility of the layers depending on what has been selected by the user

Put all of the code together on a single Web page and you get a working layered Web page Note that this will only work in the latest release of Netscape Navigator 4 0 (currently in "pre-release 3" at the time of writing)

It should be noted that we have only touched the surface of what can be done with layers There are several more attributes that have not been discussed here such as **Z INDEX**, **ABOVE**, **BELOW** (which determine positioning of the layers in the stack) **CLIP** (which allows you to create a transparent window in a layer) **BGCOLOR** (which allows you to add a background color to an individual layer) and **BACKGROUND** (which adds a tiled image background to a layer)

At the time of writing very few Web sites seem to have adopted Netscape's layer tags It has a few strikes against it being widely adopted within the HTML authoring community It requires JavaScript to function, it is a Netscape-only tag set, and much the same effect can be achieved using cascading style sheets (see Positioning HTML Elements at http //www w3 org/pub/WWW/TR/WD positioning for more information) ❑

Keith Schengili-Roberts welcomes any comments suggestions or HTML tips and tricks you may have You can email him at kschengi@interlog com His book on HTML, *The Advanced HTML Companion* (ISBN 0-12-623540-6) is available in bookstores Previous articles in the series can be found at *The Computer Paper* web site at: http //tcp ca/

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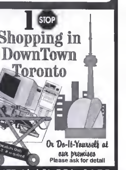

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What's playing?

Pod and GEX add new life to hackneyed game formats

BY GORDON GOBLE

Two of the latest developments to help in the fight against slow computing are the 3D accelerator card and the MMX based Pentium processor. This month we'll take a peek at one of the first games designed specifically for these new technological breakthroughs, Ubi Soft's Pod. Then we'll get a little reptilian with Microsoft's ultra-cute scroller, GEX.

Pod

From: Ubi Soft Entertainment

System requirements: MMX 166 MHz / Pentium 120 MHz computer or better. 16 Mb of RAM minimum, graphics card capable of displaying 640 x 480 in 16 bits, 200 MB hard disk space for full install, 16 bit sound card, 4x CD-ROM player or faster. Optional: stereo system or decoder to get Dolby Surround TM sound, network card, 28,800 baud modem, link cable, joystick / joypad / wheel

Street price: $65

Over the last year in particular, anyone who's anyone in the computer gaming biz has produced at least one arcade racing game. It took developers a while to figure it out, but they're finally waking up to the fact that people like to drive really fast, and what better way to do it than in the safe confines of their own PC.

Pod is another in this seemingly endless stream of arcade racers, and as a game, it's only a bit above average. So why even bother writing it up? Because it's fast, man, really fast, with colors, details and frame rates that'll knock the socks off anyone lucky enough to own an MMX-bolstered Pentium with a 3D accelerator card. It's pretty mundane stuff for anyone else, but if you've got the latest gear Pod is simply a great show.

The plot (for what it's worth) goes something like this: a planet-eating virus by the name of Pod is doing what planet-eating viruses do, namely consuming planets. Your home turf is gonna be next, and in order to get off the thing before it's nothing but a galactic belch, a series of car races have been organized to determine who gets the last standby seat on the last shuttle. Hey, what better way to decide who's worthy?

Anyway, the rest of the game is spent behind the wheel of your vehicle, one of several land-locked space-age craft that give new definition to the word traction. You'll compete with other drivers on more than 16 tracks in an environment that is oh-so-reminiscent of Mindscape's pinballing Megarace 2. With one exception, that is—the darned thing looks and sounds awesome.

If you're a fan of fast frame rates, Pod is the ticket. Ubi Soft claims up to 80 frames per second on a 3D-accelerated system, and all I can say after hours of real-world testing is that they're probably right. This thing flies, baby, and will make you forget there's such a thing as individual frames in the first place, an absolute blessing in a genre where the frame rate issue has always been a sore spot. And in case you think Pod's speed has anything to do with sparse scenery, you're wrong. 3D breath.

Pod is a true 3D world, one that comes jammed with visual amenities. Each track is an individual environment, from open air sunshine to dark and mysterious underground or night rac

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Pod and GEX

Continued from page **114**

ing, all with distinctive features and most often with a splendid and animated sky or roof. Moveable trackside objects, flashing lights, monstrous whirring fans, light sourcing and shadow effects, and a tremendous attention to detail help make this one graphically stunning exercise.

The game absolutely refused to run on a Pentium 90 and looked much less impressive on a Pentium 133 without acceleration, but for the high-end crowd, this is one high-end spectacle.

GEX

From Microsoft
System requirements: Pentium 75 processor, Local bus SVGA video, 256-color display, 8 MB RAM, 2x CD-ROM drive, Windows 95, 10 MB hard disk space
Recommended: Pentium 100 processor, Local bus SVGA video, high color display, 16+ MB RAM, 4x CD-ROM drive Windows 95, 10 MB hard disk space.
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Microsoft's latest attempt at gaming falls into a genre that's been cooked beyond the point of overdone—the side-scroller. A Nintendo staple, the side-scroller is often greeted in the PC world with cries of "Not again!"

GEX, however, succeeds because it goes so much farther than the scrolling norm. As a matter of fact, with large animated characters, complex tasks, and loads of varied actions, GEX often seems far removed from its side-scrolling confines. The star of the show, GEX the gecko lizard, is extremely cute and veritably brims with personality, and even veteran gamers will be hard pressed to ignore his plight and switch off the computer.

It goes something like this: GEX has been kidnapped and banished to the Media Dimension, a virtual land filled with prime-time TV relics and assorted nasties who want to make GEX their permanent full-time mascot. This sets the stage for lots of pop culture references, including a nonending stream of one-liners and imitations from our cocky hero as you struggle to free him. Expect lines like "That's for 10 years of *Full House*," or "This place has all the warmth of a Dick Clark special," as GEX moves through the game.

In action, GEX is full of surprises. He'll jump up on his hind legs and stroll along horizontal planes, crawl up walls on his suction-pad feet, swim, and even scramble upside-down along the underside of structures. Certain button combinations initiate actions of dazzling scope, including tail-whipping, gobbling up power-ups with his snaking tongue, or spitting fireballs. All the while, GEX smiles idiotically, sometimes watching you watching him, and is certainly the type of hero you want to rescue.

And the Media Dimension, though a little frightening for poor GEX, will go over great with gamers. Yes, it's scrolling, but vertically as well as horizontally, with enough 3D effects to give the illusion of depth, and a constant barrage of new objects and challenges. It's a tough game to be sure, one that's made even more difficult with Microsoft's decision to go without a "save game" feature. Instead, you'll find the antiquated "password" system, something available only once every two or three levels, and one of the game's few downsides.

Nevertheless, GEX will challenge you (or, should I say, your child—you wouldn't be caught playing this sort of thing, right?), while making you laugh, and impressing you with its nifty graphics and animation. What else could you ask of a game? ❑

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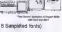

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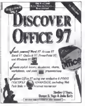

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One of the latest titles in IDG's Discover series, *Discover Office 97*, claims to be "six books in one" because it deals with the six programs (five business applications plus the operating system) that are needed to fully utilize the features of MS Office 97 Self teaching programs on Word 97, Access 97 Excel 97 Outlook 97, and Windows 95 are all included in this book

IDG's *Discover* books are one step up from its *For Dummies* line of computer training titles This book is accessible to a relative novice but allows the reader to go much further into the programs' features and options than a *For Dummies* title on the same topic would. *Discover Office 97* seems to benefit, though, from the accessible, clearly written and well laid out style that was established with the *For Dummies* series. I found the book also shared the task-oriented and answer common-questions approach of the *For Dummies* books

Discover Office 97 is also well laid out for self instruction purposes It begins with a chapter on basics, taking the reader through the Office 97 user interface and its tools In the next five chapters, it similarly shows how to perform most of the typical tasks in MS Word 97, Access 97, Excel 97 Outlook 97 and PowerPoint 97 I found the chapter on using Outlook to be exceptionally informative, since I am the least familiar with this component of Office 97

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In sum, *Discover Office 97* avoids the basic flaw of many computer manuals which typically plod like robots through a list of features ignoring the average user's task related and troubleshooting needs. As an added bonus, *Discover Office 97* is inexpensive by computer-book standards at only $26 99

If you are using Office 97, I d be willing to bet you'll refer to *Discover Office 97* for answers to questions far more frequently than you refer to the Microsoft manual, or even the online help Reading this book and working through the examples is an excellent substitute for taking a course in Office 97—or pulling out your hair when you run into difficulties ❑

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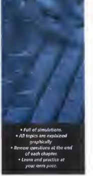
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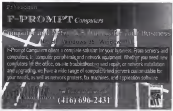
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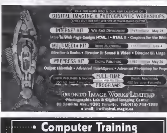
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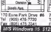

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Web Watch

Continued from page 118

functions that access the Internet capabilities of the set top box. WebTV Networks currently licenses its WebTV Reference Design for set top boxes to two consumer electronics manufacturers—Philips and Sony

"This partnership with WebTV underscores our strategy of delivering to consumers the benefits of the Internet together with emerging forms of digital broadcasting," says Microsoft chairman Bill Gates

At the conference Steve Perlman president and chief executive officer of WebTV Networks added that he is "thrilled to become a part of Microsoft's broad initiative to enable Internet access and digital broadcasting for televisions as well as PCs Our vision has been to make Internet access via TV a low-cost, fun, easy and compelling experience for consumers We look forward to working with Microsoft to make that experience available to an even broader range of consumers, in conjunction with our combined content and hardware partners."

Microsoft has indicated that WebTV would over time take full advantage of key Microsoft technologies, including multimedia versions of Windows CE, Microsoft's recently introduced operating system designed for a variety of mobile computing, entertainment and embedded applications —*KS-R*

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USER GROUPS

ATTENTION USER GROUPS: Send in your listing (maximum 120 characters) for the July issue by Friday May 23, 1997. *The Computer Paper* reserves the right the to print submissions which are deemed unsuitable.

CAMBRIDGE CLONE CLUB meets every 3rd Wednesday evening. 1111 Lang's Circle Cambridge ON N1H 5E8 or e-mail WALKER@spg.mcdermott.com

CLUB MAC meets second Tuesday of each month at George Brown College's Casa Loma campus, 160 Kendal Ave. Toronto in the auditorium @ 7 p.m. Call the 24 hour info line at (416) 480-1792 or the FirstClass BBS at (416) 480-2022

COMPUTER TRAINERS' NETWORK meets the first Thursday of each month at Myers Hall, 55 John St., Toronto ON. Call (416) 761-4156

DURHAM PC USER'S CLUB meets 2nd Thursday of each month 7:10pm, CAW Local 222 Hall 1425 Phillip Murray Ave. Oshawa. Free. Call (905) 723-3179 or (905) 623-2787

H.U.G. (Hamilton PC Users Group) IBM and PC clone users meet on the last Monday of each month in the auditorium of the Hamilton Spectator 44 Frid Street at 7:00pm. For further info contact Jim Ranew (905) 838-8771 or E-mail at [illegible]

IRMAC (Information Resource Management Association of Canada) offers meetings on issues concerning Information Resource Planning, Data Warehouse, CASE etc. http://www.io.org/~irmac or via irmac@io.org

FAF Users Group Mtg. Sat May 10, 1:00 p.m. Etobicoke Education Centre, 1 Civic Court 4 computer groups

PEAT (PSION Enthusiasts Assoc. of Toronto) meet 2nd Wednesday, monthly at 6:30 p.m., Compusys office, 1370 Don Mills Rd., 3rd floor (416) 536-1886 ext 3

PERSONAL COMPUTER CLUB OF TORONTO (PCCT) meets 3rd Tuesday of each month at 7pm, North York Memorial Community Hall, 5110 Yonge St. one floor below the Central Library. $5 for non-members. Call (416) 633-0971 BBS (416) 638-8384

TAF (Toronto Atari Federation) meets 3rd Wednesday of each month at 7:30pm. North York City Centre Library Place Room. Free for members $2 for non-members. Write: 5334 Yonge St. Ste 10 Willowdale ON M2N 6M2 Call (416) 425-5267 BBS (416) 421 8199, WWW http://www.io.org/~acinfo/taf.html

THE INTERNATIONAL PROGRAMMERS GUILD (IPG) meets every second Monday 7pm. Marchelino restaurant, 32 Wellington St. E. Toronto. Call (905) 812-1717

THE MISSISSAUGA COMPUTER CLUB meets the first Wednesday of every month at the Burnhamthorpe Community Center 1500 Gulleden Dr. 1 block west of Dixie and one block south of Burnhamthorpe, at 7:30pm. You may reach the club through the BBS at 905-279-3672 or by Email at [illegible]

THE TORONTO ACTI USER GROUP For more information e-mail: vdev@passport.ca Call (416) 791-1963 or Fax (416) 791-1530

TORONTO OS/2 USER'S GROUP meets 2nd Thursday of each month 7:10pm. IBM Canada Building 3600 Steeles Ave E in the auditorium. Free. Call (416) 299-3410 e-mail: to2@io.org www.http://www.io.org/~to2

TORONTO USER GROUP FOR MIDRANGE SYSTEMS. For more information call (905) 607-2546 or Fax (905) 607-2547

TPUG (Toronto PET User Group) meets the second Tuesday (AMIGA group) and the fourth Tuesday (C64/C128 group) at York Public Library 1745 Eglinton Ave W. (one block west of Dufferin) Toronto, and on the third Thursday (AMIGA & C64/C128) at Alderwood United Church 44 Delma Drive (QEW & Browns Line area) Etobicoke. All meetings start at 7:30 pm Call (416) 253-9637 BBS @ (905) 273-6300 Email tpug@icomm.ca

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CTI WORLD '97 Canada's Computer-Telephone Integration Show, May 21 – 22 at Metro Toronto Convention Centre. Call (416) 449-7229 E-mail: vdeopener@compuserve.com Visit: http://www.videopener.com

THE '97 COMPUTER AND HOME OFFICE SHOW May 30 – June 1 at the Greenbriar arena, 1100 Central Park Dr. Brampton ON. Call (905) 450-3084

JUNE

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PC Expo June 16-18 1997 at the Jacob Javits Convention Centre in New York City. For attendee/conference information, please call 1-800-829-3976 ext 2990 Visit: www.pcexpo.com

JULY

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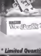

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Dracula has risen from the grave

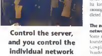
THE RESURGENCE OF BIG COMPUTING

JEFF EVANS

Those of us who use PCs tend to assume that they'll be always be around. In fact, "personal" computing may turn out to have been a temporary aberration. We may be on the verge of seeing computing turn decisively away from the individualistic model of the PC and back towards a more collective and centrally controlled form of computing.

The dream of the one big computer

Computing in the 30 years prior to the invention of the PC (1947-1977) was very different from the computing we've known in the PC era. The daily reality of computing for "information processing workers" in the years before the PC was often pretty dreadful. Aside from a privileged minority of technically adept academic and scientific computer users, most computer workers were allowed only to perform the few repetitive, hierarchical computer functions that the mainframe managers made available to them over the network.



Control the server, and you control the individual network computer user

Kalifornia Kosmic Komputing and the birth of the PC

However, in the bowels of Big Computing during the '60s there were free thinkers in academic and scientific computing centres who dreamed of a kind of computing that was not "top-down"—not centralized, hierarchical and slavish, but rather communicated laterally and which allowed for free exchanges of "unofficial" information. Pioneers at places like MIT and Berkeley invented the first "virtual communities" of computer users using "time sharing" mainframes and the networks that preceded the Internet. The first computer networks of the 1960s allowed users to share both work-related and personal information. Independent-minded hackers programmed the first wonderfully useless computer games and dreamed of bringing public access computing to the world.

The early practitioners of social computing often had to hide their activities from their masters. More than once politicians and bureaucrats overseeing research and education expenditures raged against "improper" or "frivolous" use of taxpayer or shareholder money and threatened severe punishment for misuse of publicly or corporately owned computers. Unknown to the bean counters, however, it was the underground, self-directed, self-teaching part of the computer culture that created much of the talent pool that made America the leader in high technology.

The revolt against Big Computing paradoxically wanted both to promote individual freedom and also to encourage socially responsible, community-based computing. The desire to bring computing out from under the control of the military, the government and the large corporations was one of the driving urges behind the invention of the original Apple computer. The release of the Apple Macintosh in 1984 was explicitly promoted in a famous video commercial as a revolt against "Big Brother" (i.e., IBM and all its kind). Personal computing broke the monopoly of Big Computing. Nobody predicted it, and nobody really controlled it.

The next wave: network computing and Java

Some industry leaders, such as Corel Corp.'s founder and chief executive officer Michael Cowpland, are convinced that the traditional Windows/Intel (Wintel) PC has just about reached its peak. The traditional PC may soon start to feel serious competition from Network Computers (NCs), powerful little "thin-client" computers that lack a hard drive and function by downloading applications from the network. Instead of almost universally running the Microsoft Windows operating system, NCs will be compatible with servers running a variety of operating systems, and especially will run applications written in the Java programming language.

To be fair, in order for billions of people to have access to computer tools and the Internet, rather than the current millions of users, computing solutions will have to get a lot less expensive, better connected and simpler to administer. As companies and countries confront the cost of upgrading tens of millions of obsolescent Wintel computers, the argument in favor of NCs and Java software applications may become irresistible. In a rapidly developing nation like China, the most practical way to make computing available to more than a billion people may be through cheap network computing information appliances. However, as much as network computing may bring real benefits, it may also enable increased government and corporate control over access to information, and over computer users' behavior.

Time bandits

In the case of network computing, freedom to compute ultimately belongs to whoever owns or controls the network, and more precisely the network server. In recent years, big business has begun to pay excruciatingly close attention to what employees do with their networked PCs. Software that allows management to track, observe and restrict employees' Internet use is selling briskly. A whole industry for computer-based monitoring of employee behavior has sprung up. The concept of "time theft" has become the buzzword for the employers' mania for squeezing every last second of work, every last keystroke, out of fewer and fewer employees. After all, managers reason, if I pay you for every second you're in the office, then every second you aren't actively producing for me, you are actually stealing my money (in the form of your unearned wages) from me. And with network surveillance technology, the boss can cheaply construct employee activity profiles that target the goof-offs for the next round of downsizing. One of the intangibles that may be ignored in the drive to sharpen profits is that the most productive workers are those who are creative, highly motivated, engaged in lifelong skill upgrading, and who eagerly learn and communicate well with customers and co-workers.

I worry that the elites who run governments and large corporations will find networked computer technology a tool for increasing their power and wealth at the expense of the less powerful. Also, I think that in countries without strong legal and social support for free speech, collective computing technology is much more susceptible to centralized censorship and control than personal computing. Even in the liberal democracies there are increasing attempts to diminish free speech and free access to information on the Internet. If users of network computers have to store all their data on someone else's server, then they are totally dependent on what the owner of the server decides to allow them to have access to. Control the server, and you control the individual network computer user.

Applets and oranges

Network computing has several potentially benign aspects aside from its lower cost. For tasks like retail point of sale, making airline reservations and factory inventory control, a diskless network computer may make more sense than a PC. Java software, and network computing technology generally, is tolerant of many operating systems, including Windows, Mac OS and UNIX. It could reduce existing incompatibility headaches and offer more real choices to end users. The return of potentially serious competition to the Wintel PC platform has galvanized both Microsoft and Intel to hustle to produce their own, lower cost "Net PC" technology.

We will likely see a spectrum of computing devices appear over the next decade, with price and performance characteristics suitable for different needs and budgets. Devices comparable to today's PCs will likely remain part of this product mix, but they may be available only to a small minority.

The past as prologue

The point to remember, however, is that control over computing may be irresistibly passing back into the hands of the authorities, particularly in undemocratic nations. If network computing technology is misused, it will help foster the creation of a global "security state," organized to protect and hide the rich few from a restless mass of disenfranchised citizens. If, however, the freedom of choice that flourished with the PC is protected and extended to network computing and the Internet, then the future may be much different and much better than the first age of collective computing. As citizens in a democracy, Canadian PC users have a voice in determining how the next wave of computing technology may be used for either freedom or repression. ❏

Photos were downloaded from a site created by the University of Manchester to commemorate the 50th Anniversary of the Manchester Mark I, the first stored-program, electronic, digital computer. More information and other photos can be found at: http://www.cs.man.ac.uk/mark1/index.html

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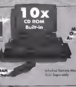

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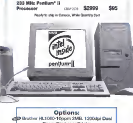

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